JUNE 1995
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RISC user

The magazine for users of Acorn RISC computers

Electronic Postman

Get Into E-Mail with Acorn's InterTalk

Look North

A Report on the Harrogate Show

Multimedia In Education

Object Oriented Analysis

THE MAGAZINE FOR USERS OF ACORN RISC COMPUTERS

RISC user

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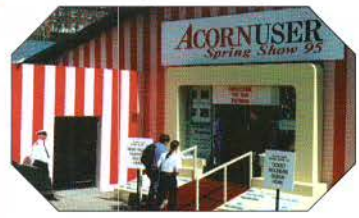

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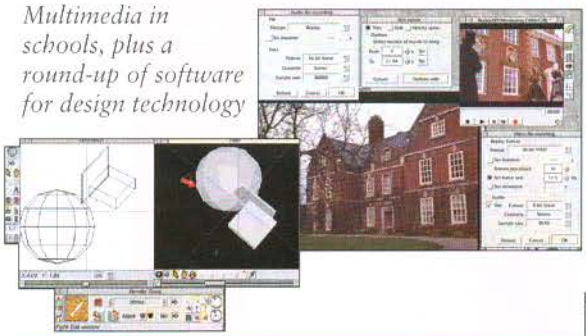

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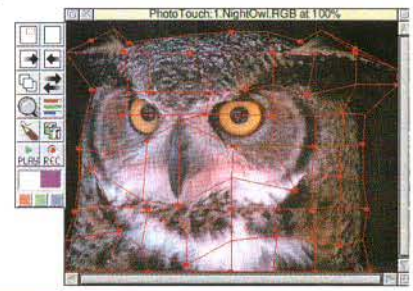

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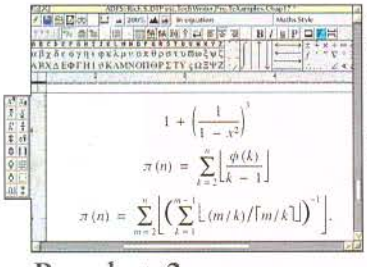

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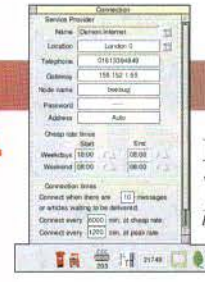

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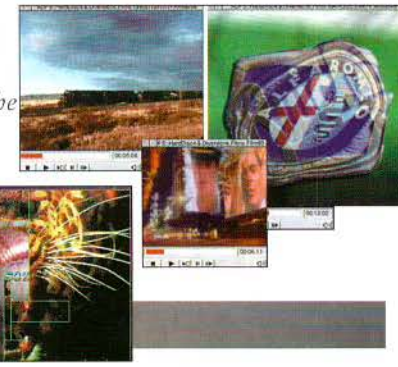

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The Internet is flavour of the month, so you might expect books to be appearing - and so they are. We take a look at what's on offer.

PCD-225 Writable CD Drive . . 64
Creating your own CD-ROMs is no longer a dream. Kodak and Philips have the means to wake you up.

Despite the remarkable achievement of providing what would seem to be the perfect solution to the question of PC compatibility, Acorn is still getting stick from some people over its 486 card. Their argument is that by going for a 486SX with a modest performance, Acorn has shot itself in the foot, and will lose out to the cheap 486DX and Pentium machines being churned out by the clone makers.

These people are missing the point entirely. It has never been Acorn's intention to take on the cheap clones. It doesn't need to, and a brief look around the Acorn User show at Harrogate (see our report on page 18) would have shown anyone why. Although there was nothing startlingly new at the show, it was very evident that the Acorn market is gearing up for an explosion in the number of high-end professional users being attracted to the platform because of its capabilities. Sibelius has already cornered the music typesetting market; also on show at Harrogate were the NovaJET III printer described in last month's News, which will attract professional poster printers; new versions of Photodesk and Studio24, both of which could start to erode the dominant position of Photoshop in the image processing field; a very exciting development from Irlam, which will bring professional video editing within reach of the serious amateur; and if Ovation Pro turns out to be as good as it looks so far, I'm willing to bet that it will turn not a few heads among serious DTP professionals.

For all these people, the important point is that Acorn computers will do the job they want, and most likely do it better and more cheaply than other platforms. All they ask is the ability to run standard PC programs as well. They don't care that Lotus 123 will take a few microseconds longer to calculate their cash flow - what interests them is that the machine has the power and the software to do a professional job in their own field of expertise.

It's the same story in education. Everyone knows that the Acorn educational software base is second to none - if at the same time you can have access to the wealth of PC CD-ROM material, and also placate the "you should be using industry standard software" brigade (yawn), then the future is bright. And I believe it is.

Alan Wrigley

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Beebug Ltd. ©1995
117 Hatfield Road, St Albans, Herts AL1 4JS.
Tel: 01727 840303
Fax: 01727 860263
Telesales: 01727 840303
E-mail: ruser@beebug.co.uk
info@beebug.co.uk
sales@beebug.co.uk ISSN 0966-1913

NEWS

It's Acorn's World Once Again

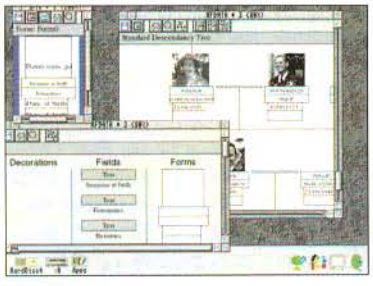
News is starting to filter through of what's in store for visitors to Acorn World 95 (27-29 October 1995 at Wembley). The Internet will be a big feature, with theatre presentations on the subject, plenty of experts on hand to guide you around cyberspace, and a Cyber Cafe for children where they can surf the Net, and browse the Blue Peter Web pages and much more. You can also expect demonstrations of Online Media's set-top box technology, and also exciting glimpses of Acorn's plans for the future. There will be a Special Needs conference on the first day (27th). All the top people in the Acorn World will be at Wembley, and there will be many activities and competitions throughout the show. You can save up to 20% of the entrance fee by booking in advance - telephone the Advance Ticket and Information Hotline on 01933 441448.

A Second Visit to the Studio

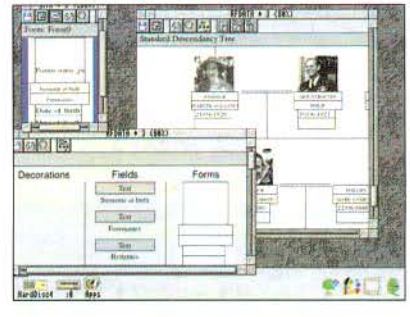
Pineapple is about to launch version 2 of its image processing package Studio24. *Studio 24 2* is a major upgrade which introduces a number of new features for the professional artist and retoucher. Virtual memory is implemented for the first time, allowing large images to be handled. A powerful texture editor is included along the lines of the popular Photoshop add-on, Kai's Power Tools. The concept of 'channels' allows you to process each colour element of an image (in RGB, CMYK or Greyscale modes) independently, and also to define further channels which operate in a similar way to masks (though more powerful). Many other features have been added, including a greater range of filters. Studio24 version 2 costs £199 inc. VAT, but upgrades to version 1 are currently free. Pineapple Softwarehave moved to new premises Suite 13/14, South Park Business Centre, 310 Green Lane Ilford IG1 1XT, tel. 0181 599 1476, fax 0181 598 2343.

A Story of Ancestors in their Prime

Minerva has launched two new packages: PrimeStories and Ancestry II. PrimeStories is described as "multimedia for the terrified" and allows children at Key Stages 1 & 2 to create their own talking books. Stories can be compiled using text, graphics and sound without needing to transfer data to or from other applications, thus providing everything children need to get started with multimedia in one package. PrimeStories costs £24.95 inc. VAT.



Ancestry II is not just an update of Minerva's earlier *Ancestry*, but a completely rewritten RISC OS compliant application. It has a sophisticated editor, and can not only read data from older Ancestry files but can also read and write GEDCOM format (an international standard for genealogical data), enabling data to be exchanged with other genealogists around the world. Pictures, sound samples and movies can be filed with the data. Ancestry II has many other powerful features, and costs £99.95 inc. VAT. For more details on Minerva products, contact the company at Minerva House, Baring Crescent, Exeter EX1 1TL. Tel. 01392 437756. Fax. 01392 421762.



NEWS

Hampshires New Forest

Trees of Britain is a new CD-ROM from Hampshire Microtechnology Centre in association with Main Multimedia. Using material from the British Tree Council, the CD provides an encyclopaedic database on British trees, with photos, diagrams, location maps, ecological information etc. Trees of Britain costs £40 (single user), and further details can be obtained from Hampshire Microtechnology Centre at Connaught Lane, Paulsgrove, Portsmouth PO6 4SJ, tel. 01705 378266, fax 01705 379443.

Free to a Good Home

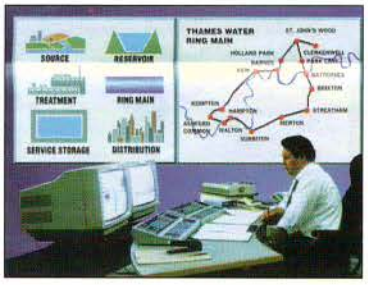
Buy an A4000 before 30th June 1995 and you'll get a CD-ROM drive absolutely free. The drive is the excellent Cumana Oscar which normally retails at £229. The offer is available from Acorn dealers, including Beebug, so get down to your local dealer now!

Welsh Rarebit

MEU Cymru has announced what is claimed to be the world's first fully Welsh computer. The computer is a Risc PC with a Welsh keyboard allowing accents to be used easily, and Welsh system messages, making it possible for Welsh users to communicate entirely in their own language. It even sorts in the order of the Welsh alphabet rather than the English. For further details, contact MEU Cymru at Gwaelod-y-Garth Road, Treforest Industrial Estate, Mid Glamorgan CF37 5US, tel. 01443 841790.

Wet Wet Wet

Skillsware has collaborated with Thames Water to produce two games which aim to educate children about the new London water ring main. *James Pond - Underwater Agent* is for primary school children, and takes the form of a game in which they guide James around the water treatment process. *Running Water* is for secondary level pupils and takes the form of a business simulation based on the management of the ring main. A pack containing both programs costs £35.99 inc. VAT. Skillsware can be contacted at Worthy House, High Street, Hamble, Hants SO31 4HA, tel. 01793 457333, fax 01703 456523.



At Last the Summer Wine

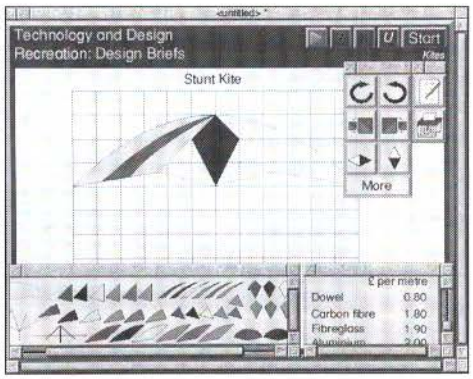
Clares *Composition*, affectionately known as Compo, at last made its appearance at Harrogate. Compo is another image processing package, but with a difference. It can treat bit images as objects, in the same way that Draw and ArtWorks handle vector images, thus allowing you to combine images from any source while still being able to manipulate the various elements of the picture independently within Compo. Naturally it is a full 24-bit package, and can handle sprites, Draw and ArtWorks files, PhotoCD and many foreign formats such as TIFF, JPEG etc. Composition costs £169.95 inc. VAT, and is available from Clares Micro Supplies, 98 Middlewich Road, Rudheath, Northwich, Cheshire CW9 7DA, tel. 01606 48511, fax 01606 48512.

When Irish Guys are Filing

Acorn has announced the first Acorn in Education Centre (AEC) in Ireland, based at the good Shepherd National School in Dublin. AECs have been well established for some time in the UK, providing a source of advice, support and training for teachers. There are also AECs in Australia and New Zealand. The Good Shepherd AEC can be contacted on +353 1 2989475.

Reeling in the Years

Longman Logotron has released a further two CD-ROMs in its *Photobase Decades* series, covering the 1920s and 1940s. Like the previous discs in the series, the pictures are taken from the Hulton Deutsch picture library and cover historical events and everyday life from the period. The CDs costs £49 ex. VAT each. Longman Logotron can be contacted at 124 Cambridge Science Park, Milton Road, Cambridge CB4 4ZS, tel. 01223 425558, fax 01223 425349.



SEMERC Puts Skegton on the Map

A new CD-ROM from SEMERC aims to encourage pupils at Key Stages 2 & 3 to think about technology and design in everyday life. The CD introduces a fictional town called Skegton which serves as a basis for projects centred on recreation, the environment, home and work. The aim is to relate design to the needs of a community. The CD has been designed to work alongside SEMERC's *My World 2+2* application, and costs £49 ex. VAT. For more details contact SEMERC at 1 Broadbent Road, Watersheddings, Oldham OL1 4LB, tel. 0161 627 4469, fax 0161 627 2381.

Captured on the Desktop

Irlam Instruments claims that its new video digitiser, *VideoDesk*, is the fastest and most powerful frame grabber on the Acorn platform. Using direct memory access and 32-bit data transfer, VideoDesk can update the screen at 25 images per second in 32000 colours, with a claimed 8.5 Mb per second data transfer rate. The digitiser is designed so that secondary cards can be added later. One of these will provide CD quality 16-bit audio capture and playback, while another will be a video codec module which will record and play back in M-JPEG format (i.e. a movie will consists of a sequence of JPEG frames). This will enable users to capture videos, edit them, and re-record the edited movie back onto video cassette, at a fraction of the price of conventional hardware video editing equipment. Prices have not been fixed, but are likely to be around £1000 for the basic card, plus £500 for the additional modules. For further details, contact Irlam Instruments at Brunel Institute for Bioengineering, Brunel University, Uxbridge UB8 3PH, tel/fax 01895 811401.

Canon on the Ball

Canon has updated its range of bubblejet printers, and Computer Concepts has developed a set of TurboDrivers for the new arrivals. The BJ-200ex and the BJC-600e are updated versions of the BJ-200 and BJ-600. The former is a monochrome printer with an effective resolution of up to 720x360dpi, while the latter is a colour printer offering 360x360 in colour and 720x360 in monochrome. A newcomer to the range is the BJC-70, a stylish little printer only 300x158mm and weighing just 1.4 kg. It can print up to 3.3 pages per minute in mono (720x360dpi) or 1.5 in colour (360x360 dpi), and costs £289 ex. VAT from Beebug and other dealers.

Eesox Drives at High Speed

CD drives are getting faster and faster. Not so long ago a double-speed drive was considered the state of the art. Now quad-speed drives are becoming a standard item at affordable prices, and six-speed drives are beginning to appear on the market. Eesox has taken the opportunity to overhaul its range of CD drives, and now offers the Silver 2, Gold and Platinum ranges. Silver 2 and Platinum are tray loading types, while the Gold is available in either tray or caddy loading versions. All drives are available as either internal or external models. The Silver 2 models are 2.4 speed drives, costing £149 (internal) or £209 (external). The Gold drives are quad-speed, and cost £249 (internal) and £309 (external) for tray-loading models (£30 extra for caddy loading). The Platinum range boasts a speed of 900Kb/s (six times standard speed), and costs £449 (internal) or £509 (external). All prices exclude VAT. Eesox can also supply drives as network towers containing from 2-6 drives. These are claimed to have a better performance than other multiple drive systems since there is no 5-7 second delay when changing drive. For more details about Eesox products, the company can be contacted at 5 Hillfield Road, Comberton, Cambridge CB3 7DB, tel/fax 01223 264242.

Social Whirl

Not strictly an Acorn-related product, but something that nevertheless may be of much interest to schools, is a new CD-ROM from the Central Statistical Office which contains 25 years' worth of its *Social Trends* reports. The CD requires Windows 3.1 and 4Mb of RAM, so it should be possible for most people to use it with the 486 card without difficulty. It costs £99 inc. VAT, but educational establishments can purchase it for £49. The CD contains a vast amount of information on social trends over the last 25 years, with comprehensive search facilities, and should be a valuable source of information for social studies. It is available from the CSO Sales Desk, tel. 0171 270 6081. The CSO is at Government Offices, Great George Street, London SW1P 3AQ.

iSV Products will shortly be releasing a Hebrew word processor, called *AlephWriter*. It will allow Hebrew text to be entered from right to left and will be supplied with a range of Hebrew fonts. For further details contact iSV Products at 86 Turnberry, Home Farm, Bracknell RG12 8ZH, tel. 01344 55769.

The Christian Acorn Users Group publishes a newsletter and a directory twice a year. For more information, contact Rev. Colin Randall, The Rectory, Swan Lane, Long Hanborough, Witney OX8 8BT. The group is also starting a public domain library for Christian clip art and other resources. If you have material you would like to submit, please contact Andrew Bower, 60 Barcheston Road, Knowle, Solihull B93 9JT.

Papersoft, suppliers of software templates for Paper Direct paper and Avery labels (see review in RISC User 8:2), can now supply templates for TextEase. Prices are the same as for other Papersoft templates: £24.95 (business papers), £14.95 (fun/theme papers), £14.95 (laser labels) and £7.95 (inkjet labels). There is no VAT. Papersoft is at 10 Dunlin Road, Grovehill, Hemel Hempstead HP2 6LU, tel/fax 01442 391967.

Fireworkz all the Way From 1st June until 31st July, any guy who fawkes out for a copy of Colton's Fireworkz Pro (£149 ex. VAT) will receive a free copy of Fireworkz for Windows, to celebrate the launch of the new 486 card for the Risc PC. The Windows version is fully file compatible with the RISC OS version, allowing you to transfer your work without effort. For more details, contact Colton Software at 2 Signet Court, Swanns Road, Cambridge CB5 8LA, tel. 01223 311881, fax 01223 312010.

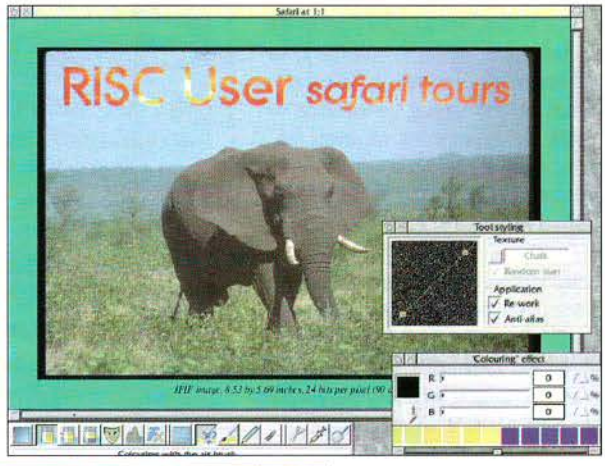
What's Cooking at Spacetech

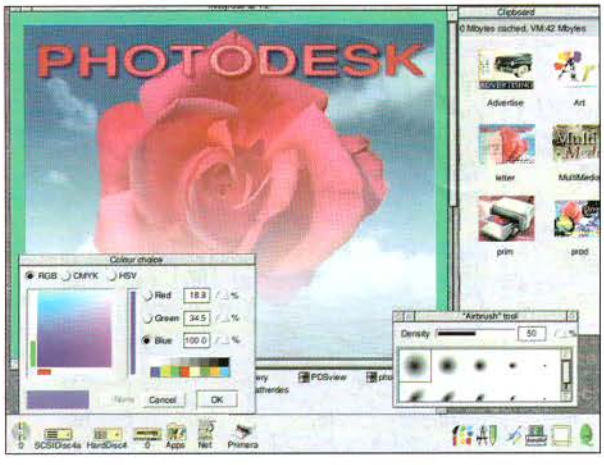
Rachelle Smith spills the beans on the company that brought you Photodesk

Photodesk

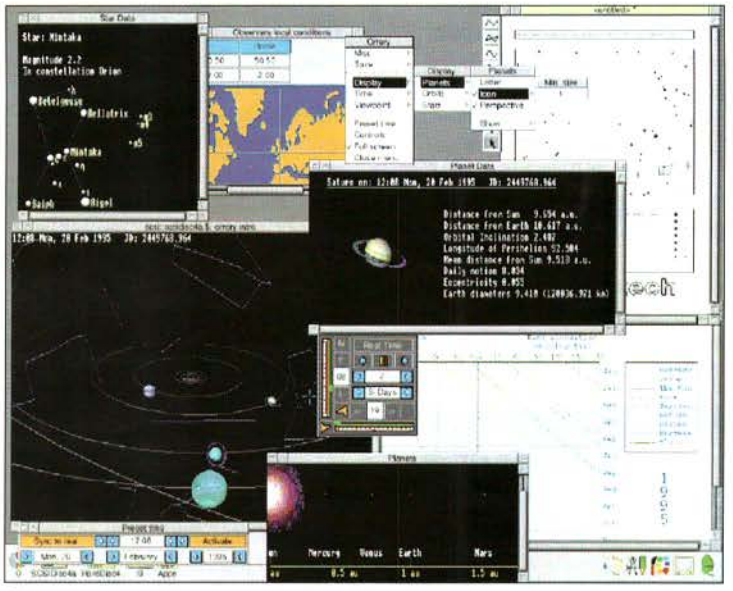
I suppose you could say the founder of Spacetech is Chris Hornby. Of course, when we were asked to write an article for RISC User, Chris had gone off to southern Africa for five weeks - so no complaints about the article please!

Those of you who have heard of Spacetech - which I hope is all of you of course - probably associate us in your mind with our latest product, *Photodesk* - but actually our roots lie in a completely different and far more specialist field (there, I've given you an excuse for not having heard of us). Chris was a radio ham and got very interested in designing and building kits for receiving weather satellite pictures. In those days (the early eighties) computers didn't enter the equation - the picture was displayed on a framestore. At this stage this was all just a hobby, but these enthusiasts have their magazines and meetings just like all the other hobbyists in the country, and Chris was constantly being asked for advice and for copies of his designs. He was soon spending a fortune on photocopying and postage.





Since at the same time his wife was looking around for an occupation which she could combine with two small children, a small business grew up supplying antennae and kits for this



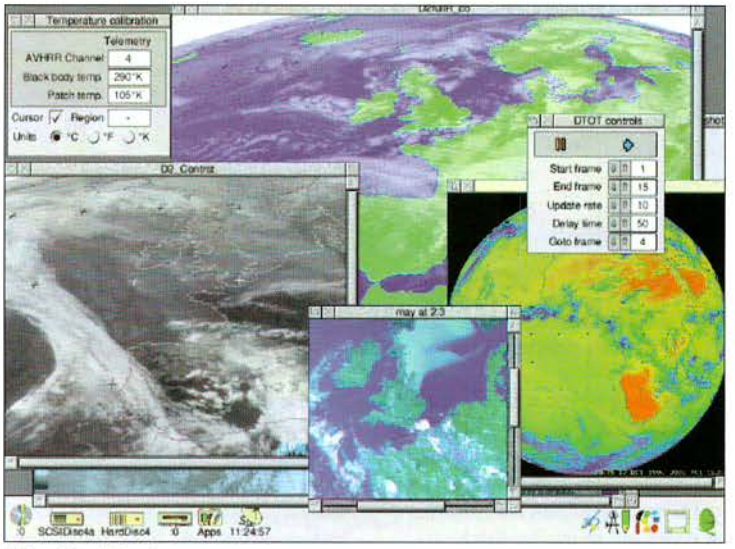
Orrery

which works with the GMS satellite (a Japanese satellite which collects images in the other half of the globe) has been produced, opening up a new market for us in Australia and New Zealand.

However, although very interesting, live weather satellite collection is a pretty specialist area and weather satellite collection on an Acorn platform is a bit like a niche market in a niche market! But obviously space science was an area of great interest, so the next development was *Orrery*, an electronic model of the solar system. This too was highly commended at the BETT Educational & Technology awards in 1991. If any of you haven't seen it, do write in and ask us for a demo disc because it really is worth seeing. It shows off the speed and graphics capabilities of the Acorn

amateur market. Then along came the BBC micro. At the time Chris was doing a diploma at the South Bank Poly in Computing, and for a project wrote some BBC software for receiving live weather satellite pictures. This was very well received (although not by the Poly who had invested several thousand pounds in a system running on a PC which was probably not as good) and Spacetech was born.

The advent of the Archimedes provided the opportunity for far greater developments in this field. New software was designed to work with a podule for decoding the signals from Meteosat (the geostationary satellite which collects images on this side of the world), and from the polar orbiting satellites. The podule won the Gold award for the secondary schools section at BETT 1989-1990 and was greeted with tremendous enthusiasm in geography classrooms up and down the country, and also by professional weather forecasters and amateur hobbyists (with money).



WeatherDesk

Since then - five years is a very long time in the computer world - the software has been entirely re-written to make it multi-tasking, to save automatically to disc and so on. Recently it was modified again to take advantage of the 24-bit colour capabilities of the Risc PC. A version machines a treat, and is highly educational. More to the point it is also great fun.

Anyway, by now we had a great band of software writers and for our next project decided to go into image processing. Lots of great CD-ROMs were becoming available from NASA

which couldn't be viewed on the Acorn platform for one thing, but in any case the raw data collected from space can often be very disappointing. The images may be captured in low light and therefore lack contrast; maybe you want a colour image from a monochrome scan; noise may need filtering out.... and so on. Also it would be possible to enhance pictures captured from our weather satellite systems with a good image-processing system. And so *PDSview* was born.

resolution and then they can be viewed again in full resolution in small areas at a time. This stuff is of great interest to geographers and geologists, and the images of the other planets thrill astronomers.

Actually what we overlooked at the time is that this kind of image processing has loads of other applications outside of remote sensing. For instance medical schools, who seem to be far more aware of the potential of Acorn machines than many other

The Primera printer

For those of you who, like me, know absolutely nothing about the technicalities of image processing, phrases like Floyd-Steinberg error diffusion, Lagrangian interpolation or command scripts for batch processing will sound like so much gobbledygook. But believe me they are music to the ears of image processors! Nowadays more and more remotely-sensed data is being put on to CD-ROM, particularly from land use satellites such as Landsat and SPOT, a French satellite. The images can be huge, but we can map them in reduced

university departments, wanted PDSview for looking at brain scans and such like. Somebody at British Steel was using PDSview to look at the surface of steel bars and study minute differences. It got frustrating to be told that PDSview compared favourably with stand-alone machines dedicated to image-processing which cost thousands of pounds (as compared to PDSview's price of £99.50 ex. VAT!) but that the company, college, university etc. wouldn't buy it because they would only use "industry-standard" machines.

Photodesk was a natural progression from PDSview for us, although it seems to have been considered a bit of a surprise by others in the market. The Risc PC really opens up splendid opportunities on the graphics front and Photodesk is designed to take full advantage of these possibilities. Until the advent of Photodesk I suppose our market had been 90% education, but Photodesk opened up a new world to us of graphic designers, printers, repro houses and so on. We discovered that some countries, notably South Africa and the Netherlands, are much more awake to the potential of the Acorn platform in these fields than we are in Britain. It would be nice to see Acorn get a secure foothold in this market: I don't suppose they could beat off the hold of the Mac but it would be good to see it severely dented. Incidentally, if any of you reading this have Photodesk and don't have the latest version (1.22), send back your discs 1 & 2 for a free upgrade. And if any of you reading this don't have Photodesk - well, you just don't know what you're missing!

So where do we see the future? Well, one thing Spacetech has never been short of is ideas. We have plenty of plans for future developments for Photodesk. We have also just written a printer driver for the Fargo Primera dye-sublimation printer (see the News pages, RISC User 8:5), bringing a technology whose costs used to be measured in thousands of pounds down to hundreds instead. In a way, that encapsulates our philosophy: attempting to bring leading edge technology within the reach of ordinary people. I don't suppose we'll ever get very rich - you don't write Acorn software at all if you want to get rich - but we'll have the satisfaction of being producers of good quality products for a good quality machine.

Multimedia for All?

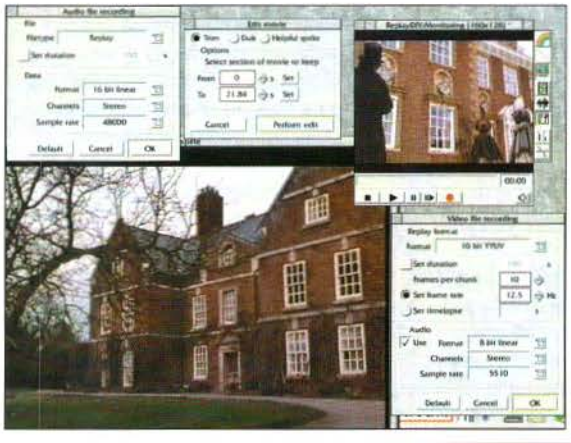
Multimedia is big news in schools at present. Mark Sealey examines the challenges and how Acorn users can meet them

Five years ago, when Oak's Genesis first appeared, there was a widespread belief that although it was a superb and technically competent piece of software, Genesis would probably turn out to be a solution in search of a problem - there was just not enough educational impetus to take proper advantage of what it could do.

How wrong that view was! To be fair, at that time the multitasking environment of RISC OS, which allowed all these wonderful resources to be manipulated in an apparently seamless fashion, was still fairly new and relatively unexplored.

Since then, these strengths of the Acorn desktop have facilitated multimedia creation. At the same time, the rate at which educational resources have become digitised has increased. Much more text has become available on mass storage media such as CD-ROMs, and through online services (especially the Internet).

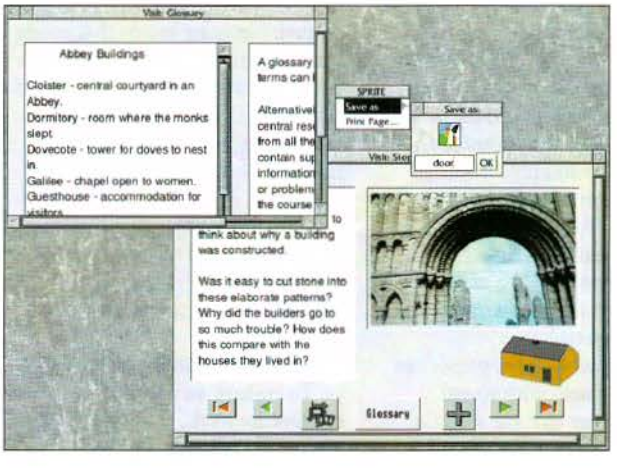
Whole discs of plays, poetry, encyclopedias, manuals, art galleries and even movies have become available much more cheaply as the price of CDs has fallen. Advances like Replay (for Acorn movies), JPEG (for photographic images) and latterly MPEG (for high quality moving images) have made it even easier to store and represent stimulating and exciting material in a form which we are used to: from the desktop on a monitor screen.



Using Irlam's 24i16 to capture video.

Music packages like Notate and Rhapsody have come of age, and the cost of video capture has fallen. The electronics to interface such devices to desktop computers are now more sophisticated; even speech in real time is no longer robotic and jerky, and does not tie up the processing power of the ARM-driven machines.

So the possibilities for combining all these resources have greatly expanded, and as a result multimedia has grown in popularity and use.


Abbey Buildings
Cloister - central courtyard in an Abbey.
Dormitory - room where the monks slept.
Dovecote - tower for doves to nest in.
Galilee - chapel open to women.
Guesthouse - accommodation for visitors.
Was it easy to cut stone into these elaborate patterns? Why did the builders go to so much trouble? How does this compare with the houses they lived in?
Glossary

A typical presentation compiled using Genesis.

Why in Education?

But there are convincing pedagogical arguments, too, for

using multimedia in education. The worst of our education system insists - mistakenly - on a memory-based model of learning where the apparent absorption and recall of logico-mathematical facts is at a premium.

Actually, only small parts of some people's minds work this way. We really learn by processing stimuli in many forms. Well-respected research by Howard Gardner for instance (try his *Frames of Mind*, Basic Books 1983), suggests that we have multiple intelligences. We think spatially, acoustically, kinesthetically and inter/intrapersonally as well as logically. This is why some people respond to conversation more readily than to the written word.

So children at school are best presented with material in several forms - visual, animated, auditory as well as textual - if we want them to make sense of their world.

Similarly, they may respond better to material with which they can interact: to do is to invent. Just to sit and listen is usually not the most efficient way to learn. Imagine learning to drive by watching an instructional video. Hence students working with Acorn-based multimedia equipment are particularly fortunate!

What Multimedia is Not

Many people equate multimedia with CD-ROMs; with nothing more than vast amounts of stored images and text. Think about that for a minute. Just because the quantity is there (and indeed it usually is - over 600 Mb of it), can you guarantee that it is arranged to make it accessible?

Does the fact that the pupils can see moving images with sound necessarily mean that the material presented is relevant to their needs, or qualitatively different from that to be found in a book? Multimedia is missing its point if a child who wants to explore an exciting subject (the planets, say, or Amazonian wildlife) cannot interact with the material, or interrogate it intelligently and to some purpose.

In this scenario we have once more become trapped into marvelling at the technology without applying sound educational criteria to its use.

What Multimedia is

How many times have you thought something made perfect sense, until you tried to explain it to someone else?

It is often the same in the case of children exploring something new, or revisiting a topic in a different way. Their learning is likely to be far more efficient if they have the opportunity to assemble resources, and to select and reject images, soundclips and text critically for a multimedia presentation. This is especially true when it is designed to be enjoyed, appreciated and scrutinised by others.

This is what multimedia allows, and RISC OS is the vehicle par excellence to do it. The whole process is so easy to get to grips with: drag-and-drop filing allows children to see exactly what is happening to a frame they have just created; filetyping means that young children can recognise instantly that they are using a picture or a text file etc.; OLE (Object Linking and Embedding) enables them to edit elements of their presentation seamlessly, allowing them to concentrate on the learning exercise, the creativity and the self expression, not the technology. Acorns do this particularly well, as we have seen.

Hardware and Software

To embark on any serious multimedia work, you'll need a dedicated authoring package. Longman Logotron's *Magpie* and Oak's *Genesis* range have made the running here. Each has its strengths. Genesis is much more ambitious; you need to persevere and become aware of the wrinkles and shortcuts if you want to do anything more than drop text and small graphics into frames. Much more can be done with the script language but this is for older pupils. An article on using this package appeared in RISC User 8:2. Magpie is aimed at simpler tasks. It is used widely in schools and much impressive work is done with it. Its reduced features are reflected in its price.

Watch out for *Hyperstudio* (distributed by TAG). An Acorn version of this Apple classic will be available this summer and promises to outperform its rivals. Hyperstudio is designed to be pupil-centred, and its combination of powerful features and ease of use puts it ahead of any other software of its kind currently available.

To do the job properly you will need a multimedia card such as CC's *Eagle M2* or Irlam's *24i16*. This allows video (still and moving) and sound to be elegantly captured and processed for importing into any multimedia application. On top of this you will usually want a scanner, a still video camera such as the Canon Ion (from Cambridgeshire Software House) and a video recorder. For more information on this subject see *Digitise that Image* (RISC User 8:1).

The New Literacy

Acorn has also tried to present the arguments for us to rethink just what pupils of the 21st century will need in terms of IT competencies. Few teachers should still think that it will be enough merely to be able to use a keyboard and type. But more, much more, will be necessary as young people are surrounded by mobile communications, set-top boxes, instant information and high-powered computer resources. Students expect to be at home in all these new media and comfortable with all the different ways of thinking which they imply.

The concept of the New Literacy (see the recent Acorn report, *Meeting the Challenge of Tomorrow*) is based on a conviction that pupils' experiences at school and home must be rich in as many modes of communication as possible. Clearly this includes multimedia because of its strengths in multisensory communication.

National Curriculum

Despite the (legitimate) criticism that the National Curriculum is heavily biased towards fact recall and the acquisition of preset knowledge, sensitive and skilful teachers and parents will still make good use of multimedia to support those of its aspects that are concerned with investigation and inquiry, creativity, critical and intelligent selection of material, research and analytical skills, thematic rather than body-of-knowledge based learning, self-expression, and collaborative learning.

Think, for example, of pupils in key stage 2 or 3 who are undertaking a project on the Second World War. They may have some of the excellent CDs available for the Acorn platform, and be in correspondence with some of those in Japan who experienced the atomic bombs. They may have penpals in Germany.

A stack of interactive pages could be assembled, designed to present the horrors, the loss and the scale of the War. Researches into the facts about deaths may improve database techniques. The need to come to terms with what they discover may be best met by discussion with peers. Selecting from the mass of photographs available could encourage a critical approach to photojournalism and propaganda.

Research may cause pupils to reassess their views of their own country's role in the war. Their reaction to the events may find its way into poetry to stimulate other students. A period so well documented will present issues of selection, and should sponsor an understanding that history is just whatever the historian wants it to be. And making all this available to others via multimedia will require the development of self-expression and creativity.

Conclusion

So what we need to do is to get out of our heads the idea that multimedia is simply a vast pile of data on a CD, or squirted down a telephone line, and concentrate instead on the fact that it is a natural way for most pupils to interact with the world presented to them by the computer.

CONTACTS

Cambridgeshire Software House
8 Bramley Road
St Ives
Cambridgeshire PE17 4WS
Tel. 01480 467945
Fax 01480 496442

Computer Concepts
Gaddesden Place
Hemel Hempstead HP2 6EX
Tel. 01442 63933
Fax 01442 231632

Longman Logotron
124 Cambridge Science Park
Milton Road
Cambridge CB4 4ZS
Tel. 01223 425558
Fax 01223 425349

Oak Solutions
Dial House
12 Chapel Street
Leeds LS15 7RN
Tel. 0113 232 6992
Fax 0113 232 6993

TAG Developments
19 High Street
Gravesend DA11 0BA
Tel. 01474 357350
Fax 01474 537887

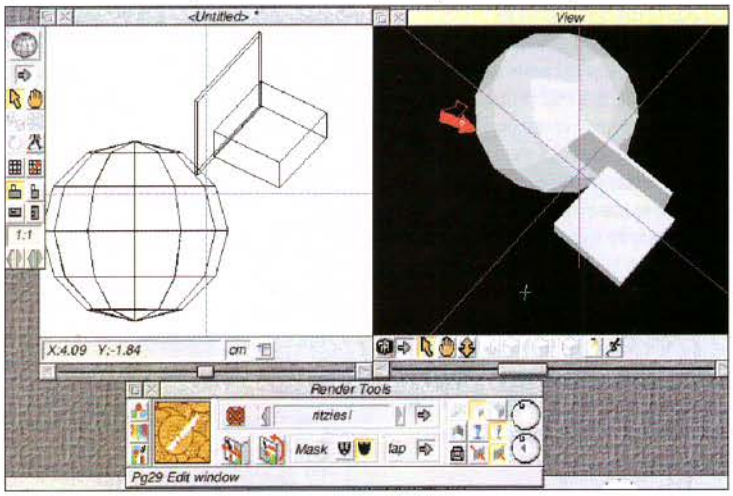
Software to Design and Make

Chris Drage explains why it's no bad thing for children to have designs on your computer

Design technology has gained recognition as an important part of the National Curriculum, and is now taught to children of all ages and abilities as a matter of course. The Dearing orders due to become law in September merely confirm this, with a more streamlined technology diet comprising a good balance between skill development and design and making tasks. As parents we tend to think that the basic diet of English, Maths, Science, History and Geography which was good enough for us ought to be good enough for our children. Yet paradoxically, we also do not want them to share our

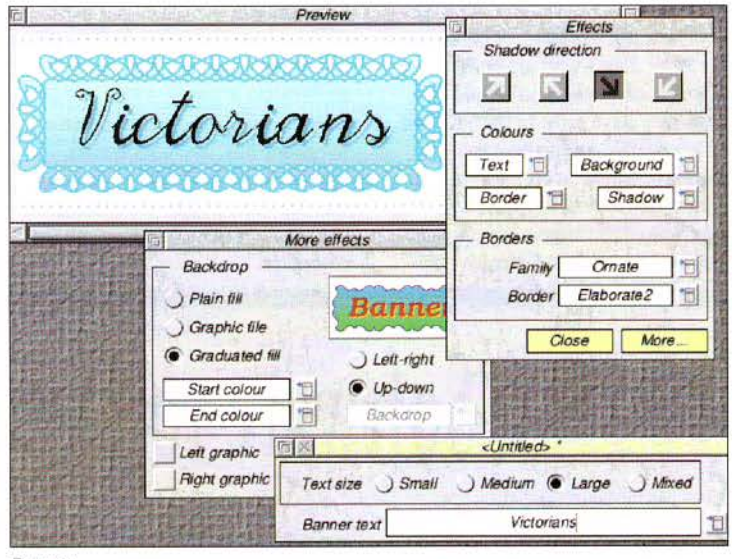
fear of computers and new technology of which we have little or no experience.

To prepare children successfully for the outside world of technology, we need to introduce them to the methods of design and production currently used in



Architech

industry. These have been revolutionised by information technology, and we need to find ways of exposing children to this technology just as much as to other better known applications of computers, such as word processors, spreadsheets and databases. In fact, computer aided design (CAD) and computer aided manufacturing (CAM) software specially designed for use in schools is gaining wide acceptance as a useful tool in teaching technology.As teachers, we try to encourage children to be more aware of design from the early years. Technology is best learned by the practical experience of making, investigating and doing. The use of a computer and appropriate software can open up areas that children simply did not have the dexterity, resources or the patience to explore before. It can enable them to produce results which are far more polished and accurate than their current ability as draughtsmen would allow, and of course it is very fast and gives them almost instant results, which helps to reduce the boredom factor. Children who have little drawing ability but who may nevertheless have good design ideas will no longer be at a disadvantage. All in all, using CAD and CAM software is a satisfying experience, likely to foster a child's interest in technology.

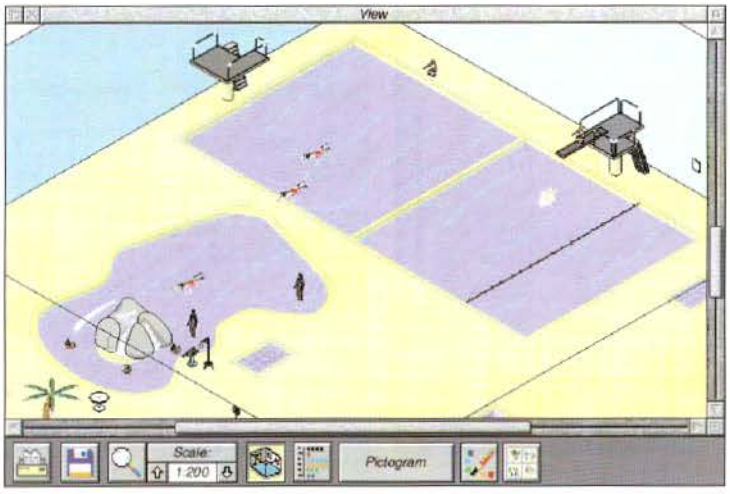


Banner

The technology curriculum encourages children to think in a more critical and analytical way about the everyday artefacts around them. For instance, how are simple shapes like boxes or cylinders, often used as packaging, actually constructed? Take a set of simple shapes like cuboid, wedge, cone, funnel, cylinder - everyday shapes that commonly surround us all. Using software like *Tabs* (Aspex Software), these shapes can be drawn in 2D then viewed in 3D. They can also be undone, flattened out, and viewed as nets which can be printed out and put back together again. With this kind of software children could generate and manufacture a large number of nets of a variety of shapes and sizes, which would otherwise have been very time consuming and tedious for them to do by hand. They could then investigate the various shapes commonly used for packaging, for example by constructing and testing different shaped boxes, perhaps with a particular product in mind.

Architech (Aspex Software) enables you to design a scale model with precision, to colour it or

render it with textures or images however you like, and to view it in 3D from any angle. You can then print out the nets (i.e. the flattened out component shapes of your model), complete with your chosen textures and with tabs added on to enable you to fold them and glue them together to make the complete model. In this way all manner of items may be made, from simple box designs for packaging use, to more complex models. It could even save wastage of materials at the building stage! This is an excellent piece of design software.



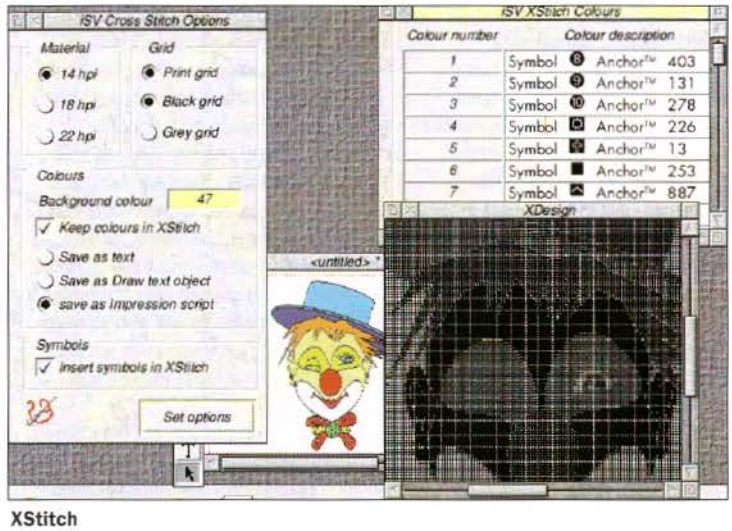
Spex

The computer combined with the right design software enables learning projects to be undertaken that were simply too difficult before. With a CAD package like *Spex* (Aspex Software) young children can use the computer to design a home interior in 2D, then to view it in 3D, for example. This is a good project for younger children as an introduction to CAD, dealing as it does with settings and objects that children already understand and are familiar with. The furniture and fittings can be moved around until the child is satisfied with the arrangement, and the room design can then be printed out in both 2D plan and 3D. A simple project like this covers a lot of ground: space, scale, perspective, plan, shape, symmetry and proportion.

Older children could use Spex for more sophisticated planning and room design, perhaps taking into account budgetary considerations. You could even use Spex to design a much larger environment, perhaps bringing a historical element into the scene - a Roman building for example. Spex themes include *Street*, *Environments*, *Leisure Pool*, *Classroom* and *Moonbase*.

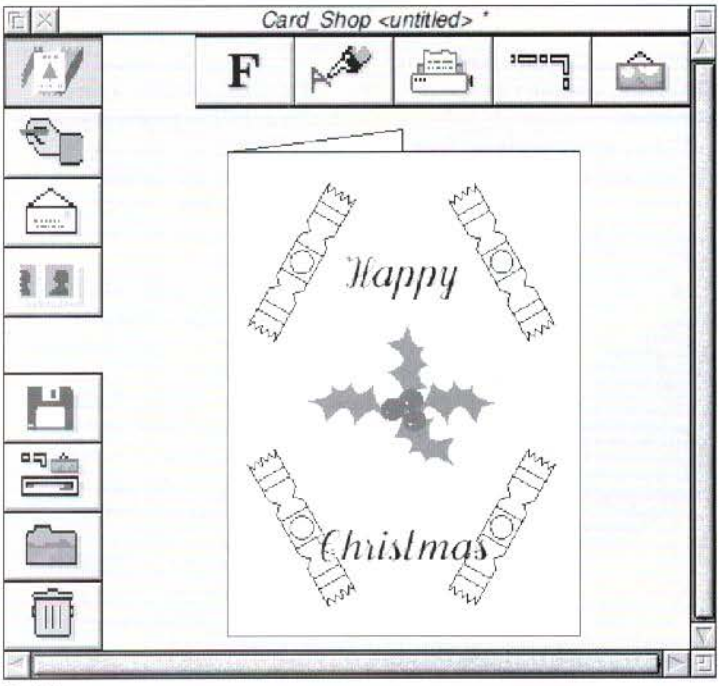
For young children, a similar but more limited experience can be obtained with the following support packs for SEMERC's *My World 2*: *Kitchen Designer*, *Room Planner*, *Places of Worship* and *Town & Village*.

'Design and make' software is on the ascendancy, with some truly excellent titles currently available which are ideally suited for school and home use. *Banner* (Kudlian Soft) provides children with a means to design the layout of a title, heading or large sign, and to print it out. Shadows and colours can be added and a large range of borders are available. Children quickly get to grips with it and thoroughly enjoy embellishing their work with its products. The motivation is having an end product that is totally related to their current topic work!



XStitch

Similarly, *Calendar* (Kudlian Soft) provides a delightful means of creating a multiplicity of calendars. The fact that my school's PTA raised over £100 for the school using Calendar with children's art



Cardshop

work is testimony to its success. In the same mould is *Celebration Pack* (Clares Micro Supplies), a compilation of four programs which comprises *Banner* (this version permits vertical banners to be created), *Calendar*, *Certify* (personalised certificates) and *Giftwrap* (pattern creation and textile design). Celebration Pack represents excellent value for money.

An ideal program for all seasons is *Cardshop* (Clares). Here's a design-and-make program which you can use throughout the year. Cardshop allows children to design the front and inside of a card, then creates a net for the envelope and a set of three 'fun' stamps. Although restricted to just one size, the program's major merit lies in the fact that you can import any image and use any font, thus catering for a multiplicity of religious celebrations. Children love this one!

Lastly, *XStitch* (iSV Products) is a real boon if you plan to do any cross stitch work in technology. You can make cross stitches from any sprite, select the material hpi (holes per inch) and alter the background colour. XStitch will automatically calculate the stitch size, convert the sprite colours to Anchor thread numbers, produce a coloured pattern and even estimate how long it should take to finish! It is really simple to use and permits children to use their own artistic creations as a basis for sewing designs.

Children quickly become bored, frustrated and disheartened if something they are making doesn't turn out right first time. All the titles mentioned here succeed because a design can be quickly generated on screen and altered just as quickly. Children could create several different items for a particular design idea, changing each one in some aspect, and manufacture all of them to decide which one is best. Good educational software goes a long way towards making technology more accessible and more entertaining, and enables children to produce professional looking results.

CONTACTS

Aspex Software
Heather House
Down Road
Tavistock
Devon PL19 9AG
Architech: £169.00
Tabs: £95.00
Spex: £39.00
Spex theme packs: £20.00 each

iSV Products
86 Turnberry
Home Farm
Bracknell RG12 8ZH
Tel. 01344 55769
XStitch: £21.50 inc. VAT

Clares Micro Supplies
98 Middlewich Road
Northwich
Cheshire CW9 7DA
Tel. 01606 48511
Fax 01606 48512
Celebration Pack: £34.95
CardShop: £24.95

Kudlian Soft
8 Barrow Road
Kennilworth
Warwickshire CV8 1EH
Tel. 01926 851147
Banner: £30.00
Calendar: £30.00

NorthWest SEMERC
1 Broadbent Road
Watersheddings
Oldham OL1 4LB
Tel. 0161 627 4469
Fax 0161 627 2381
MyWorld 2: £38.00
Support packs: £20 each

EXPANSION CARDS

for the Risc PC

DUAL SERIAL INTERFACE

Two additional serial interfaces for communicating with modems (which can be supplied), printers, plotters, instruments, etc.

SCSI INTERFACES AND DEVICES

Internal and external hard discs, CR-ROM drives, SyQuest removable discs drives , tape streamers, etc.

IEEE488 INTERFACE

Enables test and measurement instruments to be connected to the computer.

16 BIT PARALLEL I/O

Provides two separate 16 bit digital input/output ports.

12 BIT ADC

Provides eight single ended analogue inputs.

STEbus INTERFACE

Enables the use of industry standard STEbus input/output boards in an external rack.

FORTRAN 77 COMPILER

Supplied with source editor, linker, symbolic debugger and utility library for calling SWI's etc.

!Fortran77

Compile, link and execute FORTRAN programs in the RISC OS Desktop environment.

FORTRAN GRAPHICS LIBRARY

Provides a set of routines equivalent to the BASIC graphics statements - includes 32K and 16M colour modes.

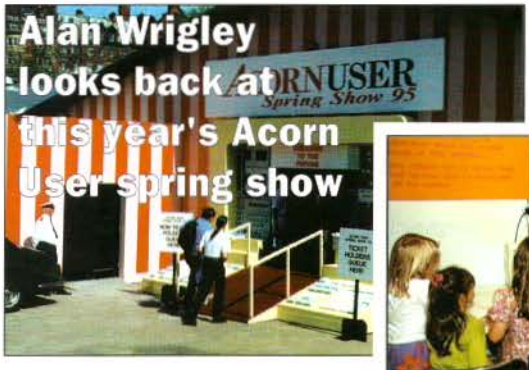
COMPLETE SYSTEMS

Intelligent Interfaces were established in 1981 and have enjoyed a long relationship with Acorn Computers. This places them in an ideal position to advise on, supply and support systems purchased from them.

Intelligent Interfaces Ltd
P O Box 80
Eastleigh
Hants
SO53 2YX
Tel: 01703 261514
Fax: 01703 267904

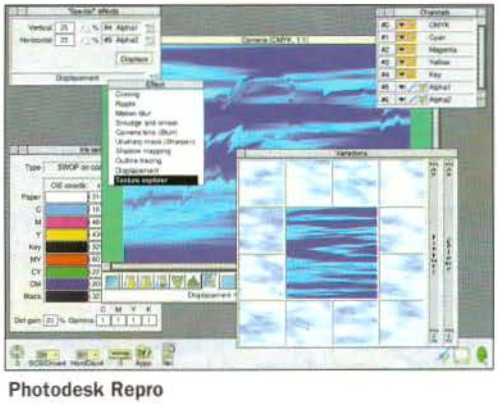
INTELLIGENT INTERFACES

Harrogate Happenings



Little Acorns

A sunny Bank Holiday weekend helped to draw the public towards Harrogate for the May Acorn User show. Despite the absence of some of the big names in the Acorn world, and the lack of any blockbuster new launches, it was nevertheless an extremely successful show for visitors and exhibitors alike.



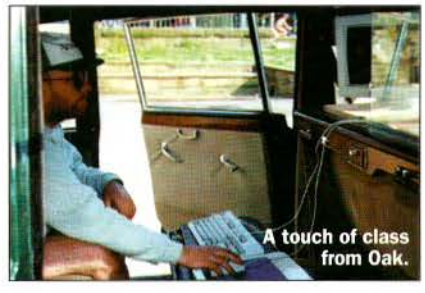
Photodesk Repro

The centrepiece of the show was not surprisingly the Acorn stand. Peter Bondar's rocket ship Risc PC made another appearance, regrettably with no additions to the 7 slices on show at Wembley last autumn. Networking was a major feature on the Acorn stand, and there was much interest in the demonstrations of *OmniClient*, and the Internet package *InterTalk* (see our review on page 34). World Wide Web browsing was being demonstrated with a pre-release version of ANT's *Fresco* (see this month's News pages), but InterTalk's own Web browser is scheduled for release in July. The Internet was also in evidence on the Silicon Village stand, where visitors were given hands-on experience of the Net.

Wired for Sound

Also on the Acorn stand was an impressive array of sound kit including a Roland synthesiser and a large audio mixing desk. Acorn at last has the hardware to challenge the dominance of other platforms in the music business, and clearly means to make itself known in this area. Elsewhere Acorn was showing off the impressive poster printing capabilities of the NovaJET III colour printer (see last month's News), and dazzlingly colourful A0 posters were rolling off the press throughout the show. And naturally, there was a full demonstration of interactive television from Online Media.

Apart from Acorn itself, the show featured many of the stalwarts on the Acorn scene - Beebug, Computer Concepts, Clares, Minerva and many, many more. For me, the most impressive aspect of the show was the number of companies still actively developing new high-end products for the Acorn market. If you've read my comments in this month's editorial you will understand why I feel that these companies are certainly not wasting their time.



A touch of class from Oak.

The most exciting developments at the moment seem to be in image processing and video. Spacetech were showing a pre-release version of *Photodesk Repro*, which the company are billing as a "Photoshop beater". Certainly what I saw was extremely impressive, and I can't wait to get my hands on a copy. Also on the Spacetech stand was the little Primera dye sublimation printer which we featured in the News pages of RISC User 8:5. Results from this look absolutely stunning for a printer costing less than £1000.

Just as impressive as the new Photodesk was the beta version of Pineapple's *Studio24 2* being demonstrated on the Eesox stand, together with a new A5 graphics tablet that pushes the price/performance ratio of such equipment to new heights. Both Photodesk Repro and Studio24 2 offer many new professional features, including a range of textures and effects based on the well-known Kai's Power Tools much loved by Photoshop users.

Entering the fray for the first time was Clares' *Composition*, which has had a long gestation period but is now at last available, and we hope to review it in the next issue. See this month's News pages for more details on this exciting addition to the image processing collection.

On the video front, Oregan's *CineWorks* was on view. I was given a brief demonstration and was suitably impressed. It looks like a very worthy addition to the range of video editing software available, and I'm looking forward to trying it out at my leisure just as soon as RISC User's review copy drops on my doormat.

Irlam Instruments can always be relied on to come up with hardware at the sharp end of current technology, and once again they haven't disappointed. On view at Harrogate was a preview of *VideoDesk*, a video digitiser designed with the real multimedia enthusiast in mind (see this month's News). When all the parts of this project are available, video fans will be able to digitise their movies, edit them on the Risc PC, and return them to video cassette with little loss of quality, at a fraction of the cost of stand-alone video editing equipment.

The other main professional area where development is proceeding apace is publishing, and here the star of the show was undoubtedly Beebug's *Ovation Pro* (yes, I know Beebug publish RISC User, but I edit it on a freelance basis, so I didn't *have* to say that!). I've used Ovation for many years and also Impression Publisher, both of which are excellent packages, but from what I've seen so far Ovation Pro is in a different league from anything else on the Acorn DTP scene.

Ask the Family

So much for the power user, but Harrogate was very much a family affair too. Acorn have not forgotten that their roots are in education, and many of the smaller companies that have supported Acorn through thick and thin were also to be seen. Two special areas were given over to younger visitors. As usual these days at Acorn shows, there was a Schools Project involving local schoolchildren, who were using Acorn equipment to publish a guide to the area. And the *Little Acorns* stand was designed for 4-9 year olds to escape from the family discussions over whether a quad-speed CD drive was more important than a new carpet, and get back to the real world of *Rosie and Jim* et al.

More, More, More

A few of the newer products not mentioned so far were CDs from Anglia on the Industrial Revolution and animals in art; a completely new version of Minerva's *Ancestry*; a new SCSI 2 card from Alsystems which looks extremely promising; a range of inexpensive quad-speed IDE CD drives from the same company; Apricote's *Prophet 2* accounts package (reviewed on page 26); Castle Technology's light pen (first seen at Acorn World and now almost ready at last); and no doubt much more that I never got the chance to see.

For once at a show, the catering area was up to the task of feeding, seating and (in the Bank Holiday heat) dehydrating the assembled masses. No large queues, and no fighting for tables, despite the fact that the show seemed to be very well attended, at least on the Saturday and the first half of Sunday. The theatre presentations were well attended, and the lucky dip was also popular, as was the free draw for a flight on Concorde - one lucky visitor is now recovering from the shock of winning this superb prize. Apparently TV personalities Dominik Diamond and Violet Berlin were on hand at the show as resident celebrities, but I must admit I didn't see either of them myself.

First prize for the most original way of demonstrating software must go to Oak Solutions, who had a large green Daimler parked outside the exhibition hall. On closer inspection, the rear seats were kitted out with a computer, enabling Oak to entertain potential customers in style and comfort away from the hustle and bustle of the main hall. I wonder how many extra sales they made as a result?

All in all Harrogate undoubtedly proved a worthwhile event, and I'm sure most of the companies who participated are glad they did so. Certainly a number of them reportedly sold out on the first day. Despite rumours that this would be the last of its kind, no decision has been made to axe Harrogate from the Acorn calendar, and hopefully Acorn users in the North can look forward to another successful event next year.

Object Oriented Analysis

Geoff Titmuss explains the principles of OOA, the technique used to write TextEase, the budget DTP package reviewed in RISC User 8:4.

With the arrival of C++ from both Acorn and Beebug, Acorn programmers can now start to play the Object Oriented game. Object orientation and C++ have been around on other platforms for several years now, and are fast becoming *the* way to develop software. The transition to object orientation is not just a matter of getting a C++ compiler - with C++ it is all too easy just to carry on writing C code. To write object oriented code you really have to learn to think in a different way. I hope this article will help to explain the underlying principles, and to start you down that route.

The Traditional Way

Traditional programming uses a technique called *functional decomposition*. Nearly all programs, large and small, have been written this way, even though the programmer probably didn't realise it at the time! The technique involves starting at the top, with a large task to perform, and gradually breaking this down into smaller parts, based on the functions to be implemented. Programs developed this way are well matched to the programming languages available until now, and generally perform well. The problems occur with large systems, where requirements might often change. Each part of the code would be in a different style depending on who wrote it, and maintenance becomes a nightmare.

ADFS::freyash.$.!ReadMe
Click to place caret in text, double click to select text.
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The Fundamental Parts

Object orientation developed from an understanding of what computing does. In all systems there are three fundamental parts: the Data Model, the State Model (or Control Model) and the Process Model.

The *data model* represents the data that is being held and manipulated. This is easy to see in a traditional database, but a data model even exists in a game, where a simulated person will have a size, a position and maybe a number of lives! Key terms for the data model are *class* (e.g. aircraft), *object* (e.g. an aeroplane) and *attribute* (e.g. the number of seats).

The *state model* is related to events and states. Let's use the aeroplane example again. This is initially in a state of *parked*; an event arrives from the control tower, and it will go to the state of *taxiing*; a further event arrives and it will take off. The events are important: without them it would still be parked. The order is also important: it must taxi before it can fly. Key terms for the control model are *state* (e.g. parked) and *event* (e.g. "take off now").

The *process model* contains all the equations and sums that work on the data. It has a close relationship with the actual code that the programmer writes. An example of this is "to move the window, add x to the left and right edge, and add y to the top and bottom".

Why OO?

However a system is written, it contains a mix of these fundamental parts. Traditional functional decomposition emphasises the process model, whereas the new object oriented approach emphasises the data model. Many benefits are seen by moving to the use of the data model. As requirements come and go it tends to be very stable - you may have to add new object classes, or remove old ones, but the majority will remain the same. The *class* wrapper contains the attributes of the object, its states, and its processes. Because the majority of classes are unchanged, the majority of processes

within those objects need no change. System maintenance becomes easier.

As systems and end user interfaces become more complex, object orientation also allows you to use other people's code (class libraries) since the internals of an object become very well hidden.

Writing a large OO Application

Before writing a large object based application, some analysis should be done. C++ is an OOP (Object Oriented Programming) language. Along with this has come OOA (Object Oriented Analysis). For large systems OOA is essential, like the architect's plan for a house, or the design drawings for a jet engine. Several types of OOA are available, and take the names of the people who promote them. I use Shlaer/Mellor OOA, but the most popular at present is Rumbaugh OMT. They both cover the same ground, but the notations tend to differ.

Example of a Data Model

The data model is by far the most important. Understanding the data correctly early on in a project will speed up development no end. I found that with the correct data model everything became quick and easy and things fell into place.

Figure 1 is a much simplified part of the data model from a small part of TextEase. Each rectangle represents an object class. Within the rectangle are listed the attributes of the object. As an example, the attributes of *Document* include its physical size, its file name and whether it has been updated. Several documents may be edited at once by having multiple instances of the Document object. I have illustrated this by showing several stacked rectangles. This is not normally shown, since all classes may conceptually have any number of object instances.

The lines between objects represent relationships; you will see

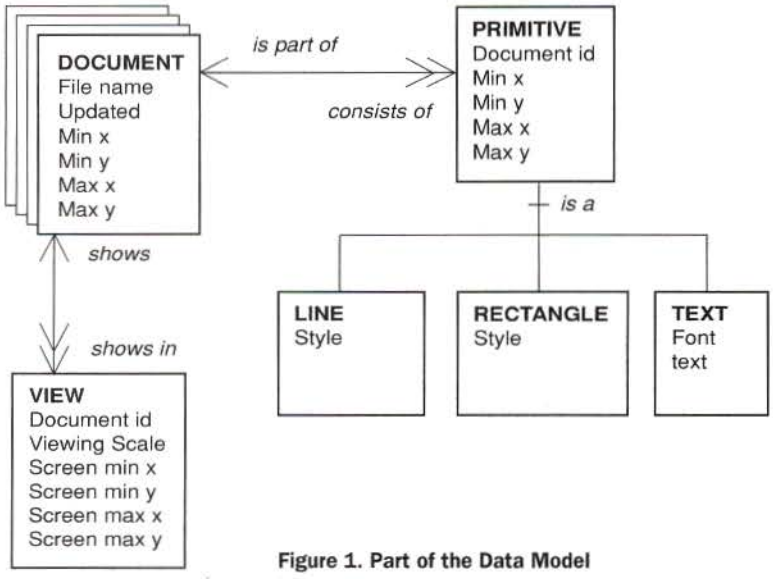

Figure 1. Part of the Data Model

that the Document is shown in a *View*. In fact the double arrow means that the Document may be shown in many views, something that all good editors on Acorn machines are able to do.

Lines, text etc. are all grouped together as *Primitive*. This is a superclass, and illustrates another powerful aspect of OO called *inheritance*. A line is a subclass of Primitive and is shown by the "is a" relationship. To move any primitive you only need to update the superclass. You can even add subclasses without changing much code - I might well add a subtype of *Movie* to my primitives, then you could have a movie showing within your DTP work, which you could drag to move and size in the same way as every other object!

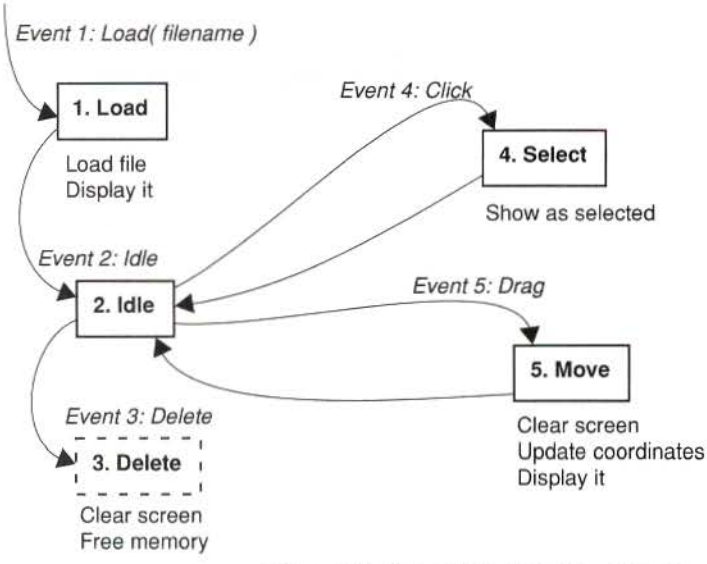

Figure 2. Part of a State Model for a Primitive

Example of a State Model

Figure 2 shows an example of a state model from TextEase. I have found state models to be more difficult and less helpful than the data model. However, they do help to identify the events that act on an object as well as providing a framework for the processes that have to happen within each state. Each object class on the data model has a state model.

The state model shows each state as a rectangle, with events shown as the lines between. The event causes a transition from one state to the next. This enforces certain conditions, for example a Draw file cannot be destroyed until it has been created.

State 1 contains the code to load and display a Draw file. The object then enters an idle state, from which different events will move it to different states. Finally a delete event will cause it to be destroyed. Under each state box is listed what must happen when the object enters the state. The latter description is essentially a summary of the process model, and gives an overview of the code that must be written.

I have not shown the process model, since these are very detailed, and often code can be written based directly on the state models.

Relating this to C++

This may all seem a little theoretical, and far away from the code hacking for which you bought your C++. Indeed, many programs have been written without any such blueprint design. However, using C++ you will quickly find that your objects are very similar to the data model. You can virtually just pick out each *class* definition and turn it into the data part of a C++ class declaration. This applies to the super/subtypes as well.

The state models are not directly supported by C++. Your events will be public functions, but they will be mixed in with functions that simply enquire about or set the value of attributes. Within each class I find it helpful to think in terms of the states, and group the processing by each state.

The Advantages of OO

TextEase pre-dated the availability of C++ on Acorn platforms, so it is actually written in C, but in a very object-based way. The benefits I have seen will apply equally to any system developed on C++.

The biggest benefit is that I was actually able to produce TextEase! Writing a DTP application is not a trival task, and there are many complex areas to understand. Using object based techniques allowed TextEase to be started in January 1994, and available and selling at Acorn World in October the same year. TextEase breaks down into 58 separate object classes. Development has continued to date, and probably now equates to 18 man months of effort. Compare this to the "over 20 man years" that Computer Concepts advertise for development of Style. They are in a different market and yes, Style has more functionality, but TextEase does reliably what many home and school users need.

Further reading (these are technical books):

Modelling the World in Data
Sally Shlaer and Stephen Mellor
ISBN 0-13-629023

Objected Oriented Modelling and Design
James Rumbaugh
ISBN 0-13-630054

OO based on C has produced a very compact system for me. TextEase runs easily within a 1Mb machine, even with the spelling checker loaded. Using C++ I doubt that you will see this advantage, especially if you start using other people's class library code. Object based applications on the PC do seem to be very large.

With OO I found many things 'just happened'. On several occasions I would add in a new object, and then find that because of inheritance it already had most of its behaviour. An example is adding a new drawing primitive such as a Draw file. Once the code was added to paint the Draw file to the screen, I would find that selection emphasis, moving and sizing happened 'for free', as it was just another object.

With OO you get consistency. For example, I decided that dialogue windows should always appear close to the mouse pointer, giving the user less distance to travel. This was implemented only once in the class code for dialogue boxes, and now every time I add a new dialogue box the same rules apply.

OO helps your code become table driven. This is especially true of static populations of objects, for example menu items. These have a fixed population that is known at compile time. Arrange for this population to be loaded from a table and they will become easy to change. In TextEase I can change the order of menus, or their help IDs or their hot keys, just be rearranging the data in the table. Adding a menu item is often just a case of adding a line to the table.

Once an object is coded it becomes available for use in the next project. Most of the code for TextEase is generic: windows, menus, buttons, even the presentation of text and lines, including their printing. After your first OO project, re-use on a very large scale becomes possible.

I hope this will inspire you to get the most from your purchase of C++. To use it properly you really need to start thinking in terms of objects. In the computing industry it is recognised that this is not an easy transition, but that the rewards for doing so are well worth the effort.

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1371	A420/1	2	20	2	2		345.00
1537	A410/1	2	44	2	2		360.00
1823	A410/1	4	0	3	2		370.00
1717	**A440/1**	**4**	**20**	**2**	**2**		**375.00**
1770	A410/1	4	19	3	2	VIDC	385.00
1829	A440/1	4	39	2	2		385.00
1503	**A410/1**	**4**	**20**	**3**	**2**	**D.Buff**	**390.00**
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1864	A410/1	4	0	3	3		405.00
1741	A410/1	4	0	3	3		405.00
1871	A410/1	4	40	2	2	D.Buff	410.00
1838	A400/1	4	20	3	3		410.00
1837	A410/1	4	40	2	2	D.Buff	410.00
1693	A410/1	4	0	3	3	VIDC	415.00
1732	A440/1	4	40	3	2		420.00
1743	**A420/1**	**4**	**40**	**3**	**2**		**430.00**
1728	A420/1	4	20	3	2		430.00
1690	A410/1	4	40	3	2		430.00
1591	A440/1	4	40	3	2	D.Buff	435.00
1734	A410/1	2	19	3	3	D.Buff	440.00
1768	A440/1	4	19	3	3		455.00
1874	A4000	2	80	2	250		455.00
1751	A410/1	4	40	3	3		465.00
1764	**A420/1**	**4**	**19**	**3**	**3**		**465.00**
1623	A420/1	4	19	3	3		465.00
1638	A420/1	4	20	3	3		465.00
1339	A410/1	4	40	3	3		465.00
1700	A410/1	4	20	3	3		465.00
1679	A420/1	4	40	3	3		465.00
1666	A420/1	4	20	3	3		465.00
1657	A410/1	4	47	3	2	D.Buff	470.00
1499	A410/1	4	20	3	3	D.Buff	475.00
1757	A420/1	4	19	3	3	VIDC+D.Buff	480.00
1698	A420/1	4	70	3	3		485.00
1795	A4000	4	80	3	250		505.00
1862	A4000	4	80	3	250		505.00
1789	A5000	4	0	3	3		640.00
1804	A5000	2	40	3	3		640.00
1851	A5000	4	40	3	3		690.00
1884	A5000	4	40	3	3		690.00
1878	A5000	4	40	3	3		690.00
1858	A5000	4	40	3	3		690.00
1882	A5000	4	80	3	3		710.00
1790	**A5000**	**4**	**40**	**3**	**3**	**L.Curve**	**710.00**

Legend:

D.Buffer	**External disc interface (Disc Buffer)**
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TechWriter Professional

Richard Hallas evaluates the latest upgrade to this mathematical word processor

Icon Technology's highly respected *TechWriter*, which combines a powerful and fully-featured word processor with extremely comprehensive and high quality mathematical typesetting facilities, is currently in the process of having a significant number of new features added to turn it into *TechWriter Professional*.

$$\sqrt{1+\sqrt{1+\sqrt{1+\sqrt{1+\sqrt{1+\sqrt{1+x}}}}}}$$

Background

Icon Technology's family of word processors started life on the Apple Macintosh. Many Acorn users will be familiar with *EasiWriter*, as it was bundled with some Acorn computer packs; and TechWriter is basically EasiWriter with a few extra word processing features and a whole equation editing system built in as well.

The equation editing is TechWriter's most notable feature, as it is particularly good at getting mathematical typography just right with very little user intervention. In fact, this equation editor (sadly in its Macintosh incarnation!) is used by several scientific and academic publishers. TechWriter has been described as a WYSIWYG implementation of the typesetting tool, TEX. Whilst this is only true to a limited extent, the equation setting is certainly unrivalled in any other true word processor, and one of the new features of TechWriter Professional is a TEX output option.

$$a_0 + \cfrac{1}{a_1 + \cfrac{1}{a_2 + \cfrac{1}{a_3 + \cfrac{1}{a_4}}}}$$

How it Works

TechWriter is unusual in the way it works because it uses 'structures' to define how a document is laid out. The basic structures provided are *Chapter*, *Section* (and *Sub-section*), *List* (and *Sub-list*), *Table*, *Figure*, *Picture*, *Equation* and *Footnote*. Most of these are self-explanatory, but it is worth noting that a Figure structure is basically an annotated object. Whilst this is usually a picture, it could be something else, such as a list or table. Many structures exist as two items: a heading and a body; and in such cases, it is actually possible to change the heading into a different structure type, which caters for very complex cases.

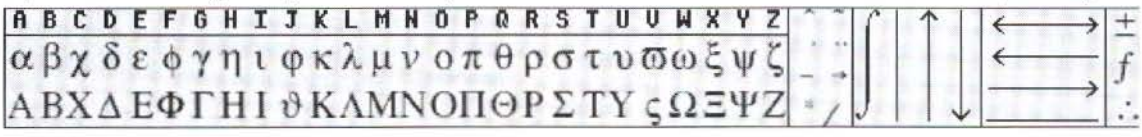
Within structures there exist styles, much as in other text processing packages, where a style defines the appearance of text. However, TechWriter's styles are divided into 'emphasis styles', which govern such aspects as the font and size of text, and 'structure styles', which alter the appearance of the structures themselves. For example, it is possible to change the text layout in terms of whether a section heading should appear above the body text in the same column, or alongside it to the left. Every type of structure has its own default style, but you can redefine this and add extra styles of your own. TechWriter is a very context-sensitive application, in that its style menu only shows the styles which are appropriate to the structure containing the caret, and the structure editing and selection facilities change according to the current structure type.

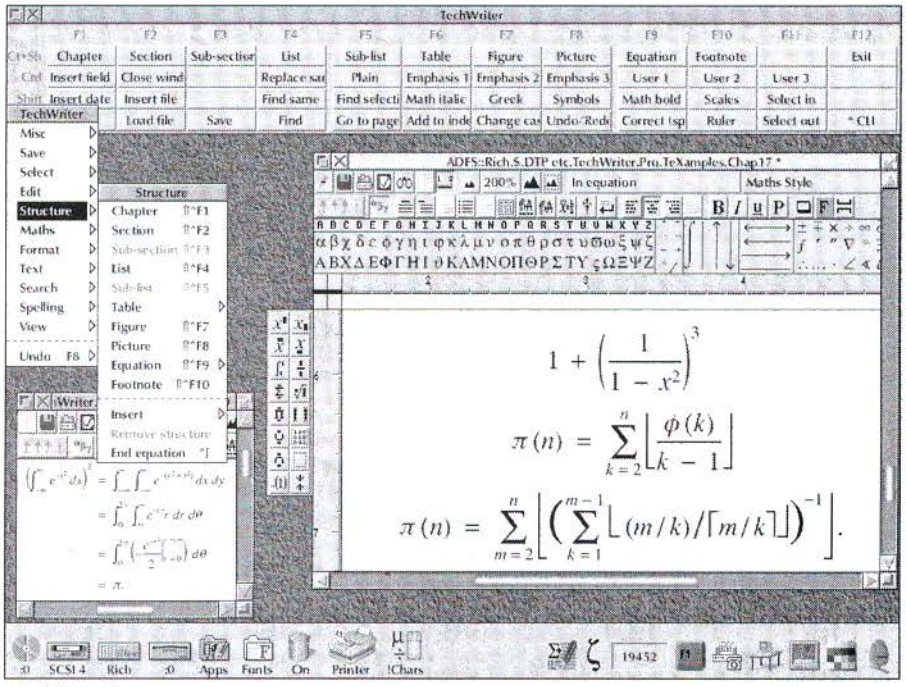
Structures can be applied in non-overlapping layers, and the button bar at the top of the window gives information about the current structure and style, as well as letting you select ever-larger areas of text depending on the depth of the current structure. The structures idea is indeed a little complicated, and TechWriter's approach is quite different from anything else which is available for RISC OS. However, the idea is extremely logical and very powerful when you have got used to it, and it certainly has the benefit of making you think logically about the structure of your documents. Also, the flexibility of the way you can edit the layout of structures means it is easy to achieve layouts which would be very difficult to produce in other packages.

$$\pi(n) = \sum_{k=2}^{n} \left\lfloor \frac{\phi(k)}{k-1} \right\rfloor$$

Developments

Release 2 of TechWriter was one of the first applications to follow the conventions set out in Acorn's RISC OS 3 Style Guide, and to employ drag-and-drop text editing. As a word processor, it has a lot of powerful features which are lacking in the DTP packages which are used by many Acorn owners instead of 'proper' word processors. Indeed, it has more word-processing features than any other RISC OS word processor. The very comprehensive button bar at the top of the window provides access to all of the common facilities, including





TechWriter in use

buttons for starting new structures, and there are proper footnote facilities. Other small but significant features include intelligent delete (which removes extraneous spaces automatically) and a *Stationery* menu.

A notable recent addition is OLE (Object Linking and Embedding), just like Impression in that you can double-click on a graphical insertion in a TechWriter document with Ctrl held down, and it is transferred into a editor such as Draw; closing the editor's window after modifying the graphic drops it back into the document. In fact, TechWriter's OLE seems slightly better than Impression's implementation, because it uses a 'pipe' rather than the scrap directory on disc, so the transfer of files happens completely within memory. TechWriter also supports the global clipboard, meaning that you can cut and paste between separate applications.

$$\left(\frac{\partial^2}{\partial x^2} + \frac{\partial^2}{\partial y^2}\right)|\varphi(x + iy)|^2 = 0$$

Professional Features

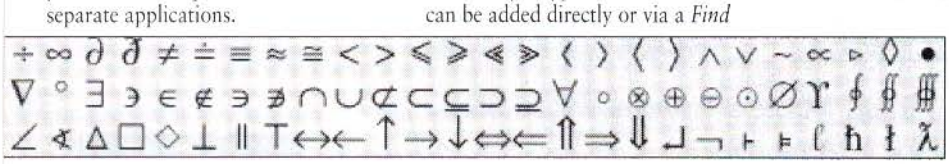
TechWriter's Professional incarnation adds to the word-processing aspects rather than the mathematical features of the program, the latter remaining unchanged over TechWriter. Work is still in progress on the new features, though you can buy the Professional version now (and receive free updates as the extra features appear).

The main new features which are in my review copy are contents and index facilities, crop marks, bookmarks, automatically numbered lists, improved plain text exporting, TEX output and various other small improvements. The index facilities are powerful, and allow you to generate indices containing optional qualifiers (i.e. two-level indices) and 'see <entry>'-type references. Words can be added directly or via a *Find* dialogue box, existing references can be edited, and indexed words within text can be highlighted in blue. Indices are saved out as text files. Automatic cross-references are not yet supported, but it is quick and easy to regenerate an index, so this is not generally a problem.

The contents-generation facility operates in a similar way to the index, in that the output is via a text file which can then be easily re-imported. However, you do not need to 'prepare' contents as you do indices; TechWriter makes use of its structures features to decide what should go into the contents automatically, and you just choose whether or not to include sections and sub-sections, and whether to tab sections inwards.

A nice 'convenience' feature is that of bookmarks: you can add named bookmarks anywhere in a document, and then move the view between bookmarks by choosing them from a menu which opens off the toolbar. It is now possible to number lists automatically using user-defined bullets, with provision for 'number Dingbats' (i.e. characters from a Dingbats font such as Selwyn). The bullets renumber themselves, making this a very handy and easy-to-use feature. Other very minor enhancements are intelligent German hyphenation (changing 'c' to 'k' at ends of lines where appropriate) and improved white space and underline facilities.

Continued on page 33



TechWriter's Maths Palette

Personal Accounts 3

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!Shares4 was written specifically for people who need a simple stocks & shares portfolio program.

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Prophet 2

The small business accounting system for Acorn computers*. As featured in Acorn User's 1994 Best Business Software Review.

Prophet is used by over 800 people in the UK to run their businesses more efficiently and is approved by UK Customs & Excise for VAT purposes.

Prophet is also used by many book-keepers and accountants (no limit to the number of company accounts) and increasingly by many schools and other UK institutions (free site licence available if ordered from us).

Features include multiple bank accounts, 192 analysis headings, VAT (including Cash accounting), invoicing, quotes & estimates, credit notes, delivery notes, statements, purchase orders, stock control, automatic standing orders, user definable reports, mail merging, profit & loss, balance sheet, tax calculations and of course full editing of ALL your data.

Above all though, Prophet is aimed directly at the non-accountant, so if you need to computerise your accounts Prophet will not baffle you with jargon. Prophet 1 received glowing reviews in all the Acorn magazines, watch out for the reviews of version 2 in Arc World, Acorn User and this magazine.

(*requires RiscOS 3.10 or later and minimum of 2mb ram)

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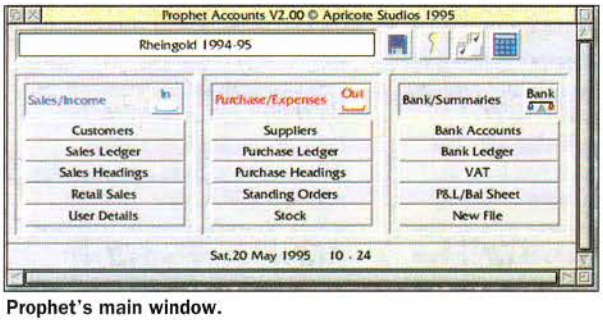
Prophet Motive

Alan Wrigley examines version 2 of Apricote's accounting package

The first accounts package I ever used was *Accountant*, which came with the Z80 second processor I acquired for my BBC micro. It was a double-entry system, meaning all transactions had to be entered twice. It spent most of its time churning the disc drive as it filed each entry, pausing only to let me enter the next item. And worst of all, there was no way to correct a mistake. Since I usually only bothered to keep my accounts up to date at the end of each quarter, one slip while typing meant I had to erase up to three months of accounts and start all over again.



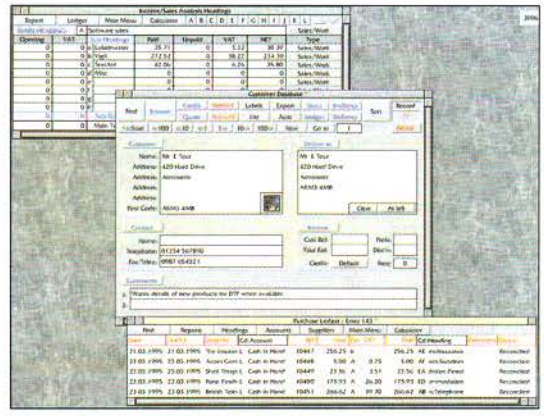
Prophet's main window.

Now double-entry bookkeeping and locks to prevent error correction may be the way accounting has traditionally been done, and in a large organisation it probably makes sense. But most small businesses these days simply don't need all this arcane ritual. After a couple of years of tearing my hair out, I ditched Accountant and wrote my own invoicing program which simply stored transaction details, ready for me to compile my annual accounts manually from the stored data. I always intended to turn it into a proper accounts package but never had the time. So when I saw that Apricote's *Prophet* was being updated to version 2, I decided that now was the time to find out what a proper package could do.

And I have to say that so far I have not been disappointed. Prophet was written for people like me, and most importantly of all, it was written by someone who clearly understands what a small business needs most: time. Everything about the package has been designed to make it as easy and as fast to use as humanly possible, and it bristles with neat little touches that testify to the care with which the program has been designed.

No More Crying in the Wilderness

All of Prophet's facilities are controlled from the main window (figure 1). You can specify the name for the set of accounts (e.g. *Bloggs & Co 1994-95*), and you can save different accounts in separate files (you can even run multiple copies of Prophet at the same time if you want to work on several accounts at once). The structure of the program is quite logical - all income is dealt with on the Sales side, all outgoings on the Purchases side, and the Bank Ledger allows you to match all transactions to one of several bank accounts. You don't need to use this facility if you don't want to; for example, as a sole trader I'm only interested in the actual income and expenditure that relates to my business - I don't care if it comes from my business account, personal account or credit card. So I have a dummy bank account called *Cash in Hand*, which Prophet assumes will be used to pay out expenses or take in income, even though it doesn't exist.



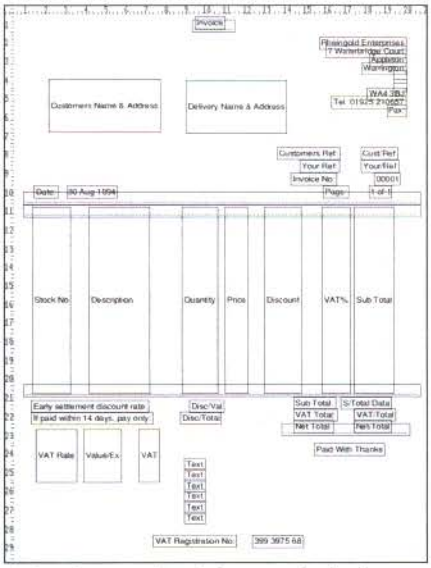
Sales analysis window (top), customer database (centre) and purchase ledger (bottom).

What I've just said typifies the approach taken by Prophet - all the facilities you might ever need are there, but you don't have to use them. You can operate at a very simple level and Prophet is (usually) intelligent enough to know what you want. This makes a refreshing change from packages that expect

you to work through rigid procedures every time you use them.

Making a Fortune

The main obsession of any business is sales. Prophet allows you to compile a customer database which can contain lots of useful information about your customers (figure 2). Once again, you don't need to set up a database in order to use Prophet, but it's very useful to do so as you then have a ready-made mailing list for future promotions etc. You can create an invoice directly from a customer record card - a further window opens into which you can enter the invoice details, including data taken straight from the Stock Database which you can compile within Prophet. Once printed (to your own design - see later), the invoice is automatically entered into the sales ledger and filed, so that you can call it up again at any time. A neat touch is that with one click you can turn any invoice into a credit note, so if you need to credit something which has previously been invoiced, just open the invoice record and click on *Convert* - hey presto, you have a credit note.



An invoice template before any design has been applied to it.

If you don't need an invoice, you can just enter sales directly into the ledger, giving the relevant details such as customer name, tax point, amount etc. You can also include an analysis heading from a list which you can set up elsewhere in the program (e.g. *Software sales*, *Hardware sales* or whatever you choose). This enables you to analyse your sales at any time.

Again, the program has been written for people who actually want to use it - hitting Return in the reference number field automatically inserts a value incremented from the last record; pressing Return in most other fields repeats the contents of the same field in the last record; entering a total figure suffixed by the VAT code (e.g. A) automatically calculates the VAT amount; and pressing R reconciles the item without further ado. For example, if you have a bunch of petrol receipts from the same garage, you only have to enter the date and the total amount each time - everything else including the analysis heading (which might be *Expenses: Petrol*, say) can be repeated from the previous entry with a single keypress. When you *do* need to enter a customer name, you can choose directly from a menu of names in your customer database; and analysis headings can all be selected by two-character codes.

The third method of entering sales is for retail operations. This has another window which simply acts as a day book where you record your daily transactions as they occur. You can even input these directly into Prophet from an electronic till or a bar code reader. At the end of the day the accumulated sales are entered automatically into the sales ledger.

Spend, Spend, Spend

The purchase side of things is equally comprehensive and just as straightforward. The supplier database, purchase ledger and analysis headings work in exactly the same way as for sales. You can set up standing orders which are then automatically processed at the correct time.

Straddling both sides of the divide is the stock database. This can store details not only of actual physical entities like nuts, bolts or widgets, but can also hold items such as consultancy time per hour. This makes it possible to compile invoices directly from the stock database for any goods or services that you supply. As with the other databases, the information you can store is very comprehensive, and as well as search facilities (which apply throughout the program) there are facilities to provide information such as a stock index, numbers sold to date, and best sellers. Re-orders can be triggered automatically when levels fall below a specified minimum. Next time you use the supplier database, the details will already be filled in for you on an order form.

Many Happy Returns

Even if you don't keep your accounts up to date all the time, you will need to do so at least once a quarter for the VAT man, and once a year for the Inland Revenue. Prophet takes care of all this for you. Provided you have entered all your transactions correctly, clicking on *VAT* produces a list of figures which can be entered directly into your VAT return without further ado. At the end of the financial year you will need a profit-and-loss account, a balance sheet, a breakdown of your sales and

Rheingold Enterprises

Invoice

A simple invoice designed using Prophet's template.

purchases and so on. This is also accomplished speedily, and is quite powerful in that you can set it up with a kind of simple script language to show whatever calculations you want. Another nice touch is that you can carry on using the file into the next year, and only start a new file when you're sure that all the transactions are logged (so no more waiting for weeks to start a new year's accounts because you know you're waiting for an outstanding invoice from the previous year).

Designer Output

One of things that lets down many accounting packages is the quality of invoices and other printed output. I personally feel that an attractively designed invoice, as opposed to a scrappy piece of tractor-feed paper printed by an old dot-matrix, improves the image of my business considerably. For this reason I've always designed my own invoices templates and transferred the data into them. I'm pleased to say that Prophet takes the same view, to the point of incorporating in the program a forms designer with which you can design invoices, credit notes etc. This works like a mini DTP system, allowing you to place elements of your design anywhere on the page, using outline fonts for the text and Draw files as a backdrop.

Don't expect full DTP facilities from this; for example, Draw files can only fill the whole page, and you can't create new frames (though an update which will allow this is planned). However, you can alter the text in any frame, as well as change the font, size and position. As you can see from figure 3, which shows an unedited template, there are plenty of frames available to do what you want. Figure 4 shows an actual invoice produced by editing that template.

Propheteering in Practice

As it happens, I've just completed my accounts for the end of a financial year, so to put Prophet through its paces I decided to duplicate the year's accounts using the package. If you're not au fait with accounting procedures it might take a little while to get the hang of it. The manual is a great help here, with a substantial tutorial section. Even so, I needed to make use of Apricote's free helpline for a couple of things which were not clear to me (though I'm sure they would have been to an accountant). As I've already said, the flexibility of the package means that if you make mistakes in the early days, it's a simple matter to correct them.

To start with, I set up databases for customers and suppliers, then entered all my sales and purchases for the year directly into the ledgers. Using Accountant this would have taken about two days; with my own program I could probably have done it in a long afternoon; but with Prophet it took just a couple of hours. I actually enjoyed using an accounts package for the first time in my life!

Virtually all windows have icons which enable you to open any of the other main windows, so whatever you are doing you can view, say, the customer database or the sales ledger without having to track down the right menu option.

Product: Prophet 2

Supplier	**Apricote Studios** **2 Purls Bridge Farm** **Manea** **Cambs PE15 0ND** **Tel. 01354 680432**
Price	**£170 inc. VAT** **Upgrade £38.78 inc. VAT**

Prophet or Loss?

To conclude, Prophet has a lot going for it. I've made much of the ease of use and the way it operates intuitively. Its flexibility is a big bonus too, particularly if like me you make the odd mistake. Most other accounting packages on any platform will either prevent you from correcting it, or will only allow you to go back a limited way. They may also only save details of individual transactions for a limited period of time. With Prophet, on the other hand, all your accounts, as far back as you want to go, are accessible and amendable. It may seem a lot of money at first glance (though not for an accounts package, I can assure you), but consider this: if you value your time at, say, £15 per hour, Prophet only needs to save you 12 hours work before it's paid for itself. My impression is that it will do this very quickly, which makes it a bargain if you're serious about being in business. And if it also enables you to dispense with the services of an accountant... well, enough said.

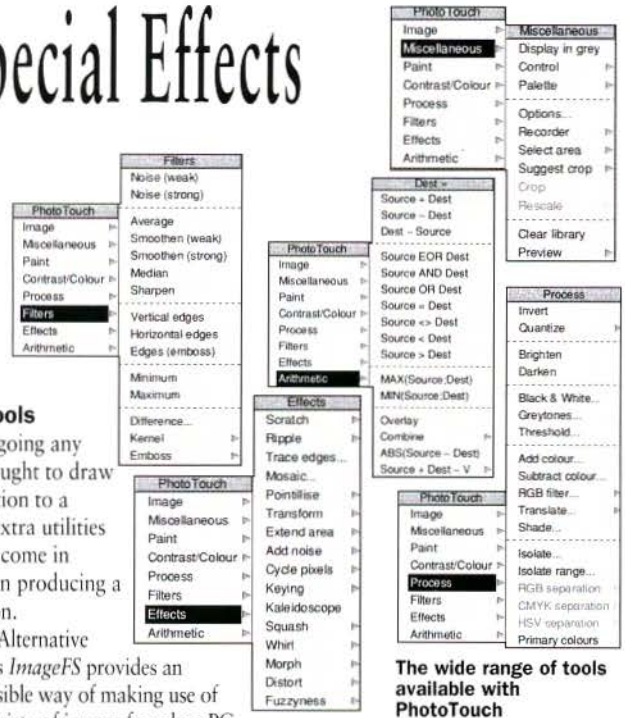
Graphics in Focus: Multimedia and Special Effects

Andrew Rawnsley

concludes his series of articles looking at graphics packages from the user's viewpoint.

Multimedia is one of those buzz words of the 90s that journalists have welcomed with open arms. It can encompass just about anything, or nothing depending on who you talk to. In this concluding article, I plan to concentrate on the ways in which the careful use of graphics packages can improve presentations, be they linear (rolling demonstrations) or interactive.

In earlier articles we have looked at PhotoTouch, Photodesk, Studio 24, ProArt 24 and RevPro 24. The latter four packages are less suited to our topic this time as they are more tuned to single image production and retouching, and these have been discussed in detail already. They can be used in multimedia processing, of course, particularly where single stand-alone images play a part in the presentation, and for this reason they are included in the table at the end of the article. However, I will largely concentrate on PhotoTouch, since this has more to offer in terms of multimedia.



The wide range of tools available with PhotoTouch

Useful Tools

Before going any further, I ought to draw your attention to a couple of extra utilities that might come in handy when producing a presentation.

Firstly, Alternative Publishing's *ImageFS* provides an almost invisible way of making use of the wide variety of images found on PC CD-ROMs. Collections of high quality, useful images can be staggeringly cheap, and when preparing the materials for a presentation they can be invaluable. ImageFS will convert the images from their native PC formats on the fly as you load them into your editor - all you have to do is double click on the image file.

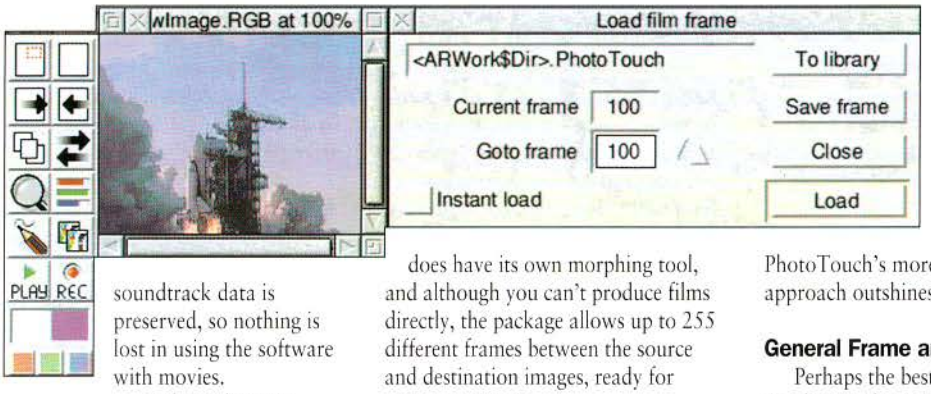
Secondly, if you want to edit and produce Replay movie animations, and add frames to existing movies, *EMConvert* from Uniqueway could be very handy. It will produce Replay movies from directories of sprite files, making it a useful addition to any graphics package.

I could go on to mention proper video editors such as Empire or Eidoscope, but these are beyond the scope of this article. Both have been covered recently in RISC User (7:9 and 8:3 respectively).

PhotoTouch and Replay Files

Oregan's PhotoTouch package stands out for multimedia usage and for creating one-off images for unusual effects. It contains the largest collection of image modification, distortion and processing tools found in any Acorn package. Whilst not having a 100% professional feel, it is this range of features that makes it ideal for multimedia presentation.

Right from the start I found interesting additions not often picked up in reviews. For example, this is the only package that can load Replay movies directly. It decompresses them onto disc, and converts each frame into a sprite internally. This sprite can then be extensively modified internally, and saved back into position ready for compression into a standard Replay file. All the



Using PhotoTouch to edit a movie frame

soundtrack data is preserved, so nothing is lost in using the software with movies.

Perhaps the most practical application of this facility is in adjusting combinations of brightness, saturation and contrast within a movie file produced by yourself. The accurate control over these components provided by PhotoTouch makes the rather laborious process well worthwhile, particularly if there are other effects that you require such as colour shifting. Perhaps you want to fade one section from colour to grey shades? You simply use the same tools on the movie frames as you would on a regular sprite.

Once you have finished, you simply click on *Save*, and the movie is ready to run.

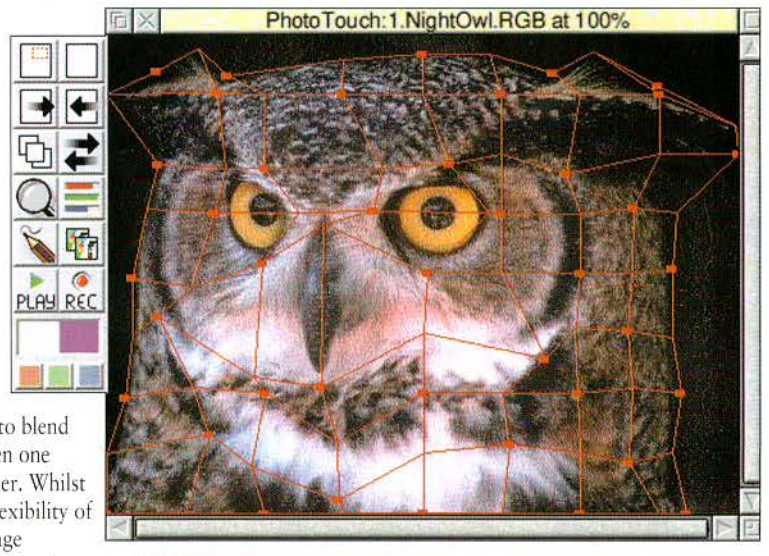
Morphing

The process of morphing is still very popular after coming to general attention several years ago in films such as Terminator 2. Morphing can be used most effectively in presentations where you need to blend smoothly between one image and another. Whilst not having the flexibility of its brother package *Morpheus*, PhotoTouch does have its own morphing tool, and although you can't produce films directly, the package allows up to 255 different frames between the source and destination images, ready for saving as sprites.

Control over the morphing grid is provided, so that you can map the correct parts of the source and destination images onto each other. This can then be saved and reloaded if required. The only real limitation is that the grid has only 9x9 control points. However, for all but the most complex blends, this doesn't pose a problem.

If you need to produce animation files from the resulting sprites, a copy of EMConvert will come in handy.

Studio 24 offers a facility which can be used in a similar way. Described in the manual as a tool to change areas of one image based on parts of a second image, the *Warp* option appears strikingly similar to morphing in concept. However, PhotoTouch's more comprehensive approach outshines that of Studio 24.



Creating a morph

General Frame and Sprite Effects

Perhaps the best reason for using a graphics package to produce multimedia presentations (apart from the obvious single image retouching possibilities) is the need to process individual frames of an animation in ways which are not possible with expensive video editing suites such as Empire or Eidoscope. After all, packages such as PhotoTouch or Photodesk are sold on the basis of such functionality, so you would expect the tools available to encompass a wider range than those available in stand-alone movie editors.

Whilst PhotoTouch is the only graphics package to load Replay movies directly, assuming you have a collection of frames, perhaps saved out of a video editor, what can be done with them?

The beauty of splitting the movies into frames (despite the amount of hard disc space required) is that with a little effort, you can load them into your favourite image processing package and apply motion blurs, whirl effects, and even the mosaic effects much loved by TV crime shows and documentaries for concealing identity.

Needless to say, you can also add in details never contained within the original image. By carefully piecing the frames back together, it becomes hard to tell fact from fiction. After all, the camera never lies, does it?

I can't go much further without again mentioning PhotoTouch. Whilst it cannot compete with Photodesk on the grounds of professional retouching, when creating presentations requiring a full range of effects, the volume of tools available from the vast menus (as you can see from the illustration) make the package a must. Most tools allow the level of the applied effect to be set, so by gradually adjusting the values, attractive animated fades, swirls and distortions are available. However, it might also be worth checking out the previous article on retouching (RISC User 8:5) for more information on the likes of Photodesk and Studio 24.

Stand-alone Images

For careful editing of single images, Photodesk's tools are second to none. In an animation, each frame is on screen only briefly, so highly accurate and time consuming pixel level editing is not needed. However if an image is going to be displayed for any length of time much care is needed to get the picture perfect.

This principle can be demonstrated by flicking through the pages of a magazine. All the colour images look wonderful at a glance, but if you stop and look carefully at them individually, any deficiencies immediately become apparent.

We looked at the different effects and processes which could be used on images in the previous article in this series, so little more needs to be said here. In conclusion, then, PhotoTouch boasts a wide range of tools and has facilities for handling movies and morphs, but its pixel level handling of images - and particularly large full colour ones - isn't up to that of, say, Photodesk. That's not to say it's poor, just not as good in this area as its heavy-weight rivals (which tend to retail at twice the price!).

A Final Word

The comments above are perhaps best summed up in the usual table format. It's also worth stressing here that although each article in this series has tended to concentrate on one or two of the programs as being the crème de la crème, as it were, for the particular task under discussion, all these graphics packages are excellent products, and all can turn out good results for most of the purposes we have discussed. The aim of this series has been to show that each has its own area of specialism in which it stands out a little from the rest. However, when investing in expensive packages such as those discussed here, never take someone else's word as gospel. Always try before you buy, or at least make use of the demo or shareware versions which are usually available on request. Bear in mind, too, that most of these packages are liable to be updated (see the News and the Harrogate report in this issue for new versions of Photodesk and Studio24), so the situation will not remain static.

	ProArt 24	Studio 24	RevPro 24	Photodesk	PhotoTouch
Colour support	7	9	8	8	7
Colour on pre-Risc PC machines	-	8	6	9	9
PhotoCD support	10	-	-	7	7
Load Replay	-	-	-	-	8
Save Replay	-	-	-	-	6
Range of FX	7	7	5	9	10
Set contrast	7	8	-	9	9
Sharpen	6	7	6	9	8
Blur	6	8	6	10	8
Saturation	-	9	-	9	9
Colour shift	5	9	7	8	7
Define new FX[1]	7	9	-	9	7
Morphing	-	6	-	-	8
Whirl	7	-	-	-	8
Distort	8	6	5	8	9
Mosaic	-	5	-	6	7
Graph Plotting	-	-	-	-	7
Value for money[2]	4	6	5	7	9

[1] *Using Matrix approach.*

[2] *For multimedia and special effects.*

Table 1. Comparison of the packages feature by feature

Postscript

In the last article (RU 8:5), the information given implied that Revelation ImagePro 24 did not have facilities such as contrast, sharpen or saturation control, or blur effects. These facilities *are* present in the package, and we regret any misunderstanding that may have arisen as a result of the article.

Continued from page 25

The only new feature which I found really disappointing was the crop marks facility, which requires the user to go through various confusing contortions such as defining paper sizes in Printers and setting up a system variable called *<TechWriter$Options>*; there's nothing so simple as an option switch in the print dialogue!

The new text export choices appear as savable options in a window accessed from the icon bar menu, and include choices between combinations of carriage returns and linefeeds for the ends of lines and paragraphs, a definable line-length, and the option to expand tabs into spaces.

Finally, a feature which many users have been asking for, apparently, is the ability to save in plain TEX format, which undoubtedly falls into the 'invaluable if you need it' category. If you do need the feature, then you should be aware that there are some limitations on what can be translated. These are too detailed to cover here, but are described fully in the manual. Icon Technology is working on removing as many limitations as possible.

A number of new features remain to be implemented in TechWriter Professional: these are extended plain text saving options and RTF support; auto-numbered chapters, sections and equations; fancy borders; coloured backgrounds; and pamphlet printing.

$$\pi(n) = \sum_{m=2}^{n} \left\lfloor \left(\sum_{k=1}^{m-1} \lfloor (m/k)/\lceil m/k \rceil \rfloor \right)^{-1} \right\rfloor.$$

Conclusions

There is no doubting that TechWriter is by far the best dedicated word processor for RISC OS, and if you are a producer of scientific documents then you should buy it without hesitation. The Professional version simply makes an already excellent product even better. My only real criticisms are that it's a little on the slow side (though not excessively so) and I don't think much to the new crop marks facility.

TechWriter Professional

Supplier	**Icon Technology Ltd** **5 Jarrom Street** **Leicester LE2 7DH** **Tel. 0116 254 6225** **Fax 0116 247 0706**
Price	**£237.35 inc. VAT** **(upgrade £59.93 inc. VAT)**

Of course, it's a word processor, not a DTP package, so DTP functionality shouldn't be expected. If you need DTP with occasional equation editing you may be better off with Impression and Formulix; but for anything like scientific documents, TechWriter is simply unbeatable. The usefulness of the equation editor's integration cannot be understated, and makes the production and alignment of complex formulae a very simple process. It takes a little more learning than other programs, but is well worth the effort.

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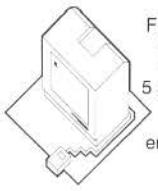

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"TechWriter has reduced our expenses considerably. I welcome the update."

"TechWriter has been invaluable – the best piece of software on any platform for scientific work."

"I hear more praise for TechWriter than for any piece of software for RISC OS."

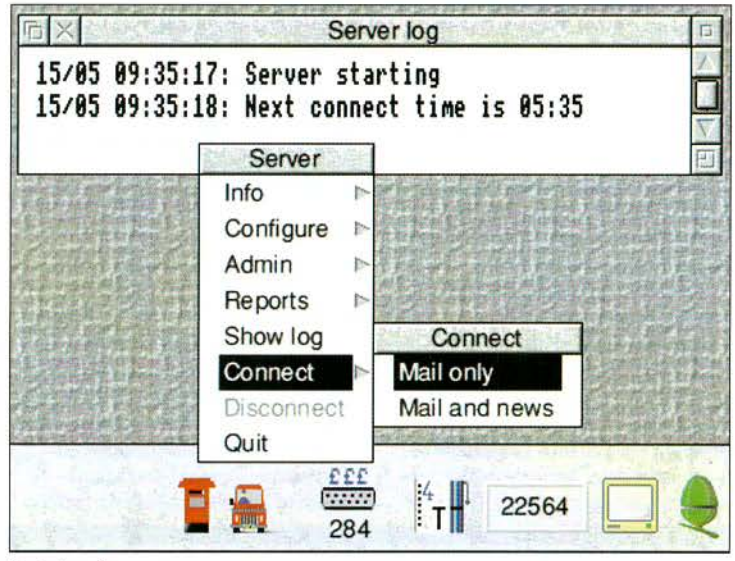
User comments...

Great news for Formulix and Equasor users

Send in your disc to qualify for a £50.00 discount off your purchase of TechWriter or TechWriter professional.

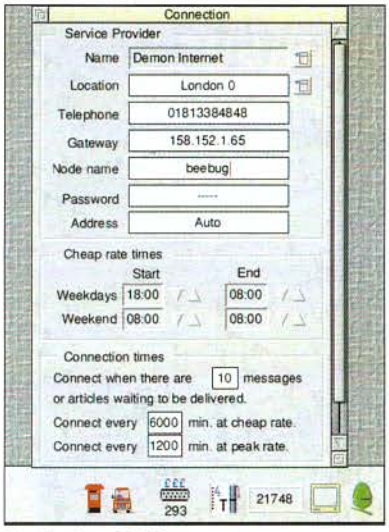
Internet for Acorns - at last

Lee Calcraft reviews Acorn's newly released InterTalk suite for accessing the Internet



Going on line.

Up to this point, Acorn users have really been the poor relations in the much hyped world of the Internet. Both Apple and PC users have been able for some time to purchase competent Internet packages, but the Acorn fraternity has only had access to public domain software. And while this has considerably improved in quality over recent months, it still demands both tenacity and technical ability to get it up and running. Does Acorn's InterTalk suite successfully fill this gap in the market?



Configuring MailServ.

InterTalk is the first of a number of RISC OS Internet packages to be released. Hovering somewhere in the wings are Doggysoft's Termite-Internet (promised for last year's Acorn User show), and Ant Ltd's Internet suite, which should be available soon.

The first point to make about InterTalk is what it does not do. At present it can only be used to access e-mail and newsgroups on the Internet. It has no Web browser (for accessing the World Wide Web), or Archie or Gopher clients (for performing searches), and you cannot either finger, ftp or telnet. These things all feature in Acorn's plans for future releases, and in particular a Web browser and ftp facility should appear in a few months' time as a free upgrade to present purchasers.

InterTalk comes on one or two floppy discs depending on whether you are purchasing the single or multi-user version. A 44 page manual completes the package. Installation is pretty straightforward for an Internet package. Acorn were aware of the complexities of setting up Internet access software, and have gone to considerable lengths to keep InterTalk initialisation as simple as possible. They have even included data on major service providers, and on the most common modems, so that you can just select these items from a menu instead of having to enter comms data, telephone numbers, IP addresses and the like.

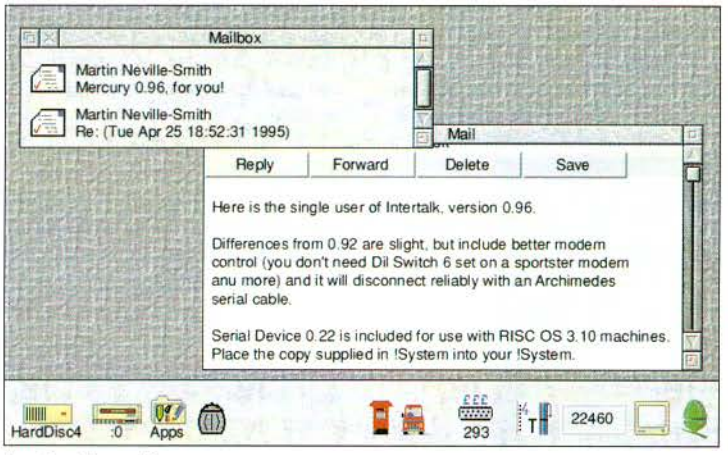
An Overview

Of course there are one or two things that you still need to set up, but it is all very logical. It works this way. The suite consists of three applications and two directories, and you first need to copy these to an appropriate directory on your hard disc. One of the applications, called *Internet*, is a repository for modules and host data, and merely needs to

have been seen by the filer, so you can completely ignore this.

The other two are *MailServ* and *Mail*. The first is the mail server application (represented by a mail van) which does all the work, while the second, with its pillar box icon, is the mail client application. On a single user system, both these applications would be run together, while on a multi-user system, using say Level 4 or Acorn Access, the server would be run on a server computer, and each of the distributed client machines would run a copy of Mail.

All the setting up and the control of Internet access, and the link to the modem is performed from the MailServ application, while outgoing mail is sent by dropping it on the pillar box (logically enough), and incoming mail and newsgroups are read (somewhat less logically, though intuitively enough) from the pillar box - which bulges when there is new mail to be read.


Mailbox
Martin Neville-Smith
Mercury 0.96, for you!
Martin Neville-Smith
Re: (Tue Apr 25 18:52:31 1995)
Mail
Reply
Forward
Delete
Save
Here is the single user of Intertalk, version 0.96.
Differences from 0.92 are slight, but include better modem control (you don't need Dil Switch 6 set on a sportster modem anu more) and it will disconnect reliably with an Archimedes serial cable.
Serial Device 0.22 is included for use with RISC OS 3.10 machines. Place the copy supplied in !System into your !System.
HardDisc4
:0
Apps
293
22460

Reading the mail.

Setting up

After copying the supplied applications to your hard disc, you begin the setting up process by running the MailServ application. You then call up the *Configure* submenu, and select each of its six entries in turn to configure your Internet connection, the modem you are using, and the directories you will be using for storing incoming and outgoing mail.

When configuring the connection details you can set up the system to automatically go on line, either when there are a certain number of messages waiting to be sent, or at regular intervals, which themselves can depend on the prevailing telephone cheap rates. Of course single users will probably want to control this manually, deciding for themselves when to go on line, and they can do this directly from the icon bar menu.

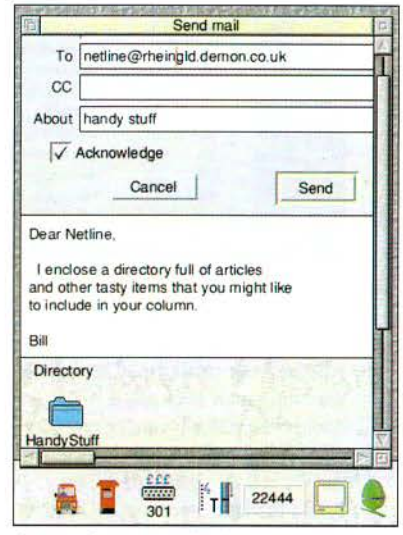
When you get to the *Mail* entry in the *Configuration* submenu, you enter the address of your mail server (post.demon.co.uk in my case), and your domain (everything to the right of the @ in your own e-mail address). You then enter a disc space limit for the mail operation - this is the amount of disc space that you are happy to lose to stored e-mails. The default is 20Mb!

Next you must tackle the *Admin* submenu - regardless of whether you are the administrator of a multi-user system or a single user. It is from here that you set up the names and passwords of all users, and unless this has been done you cannot log onto the Mail application to send or receive mail or to read the newsgroups.

Designed with schools in mind, the administrator is given the power of censorship over which newsgroups each individual user may or may not subscribe to. And he can even use wildcards, so that for example, he could establish that certain groups of users were debarred from accessing any newsgroup which contained the word *sex*.

Going on Line

Once you have completed these formalities, it is easy enough to get on line. Simply switch on your modem, and choose *Connect* from the icon bar menu. In fact there are two varieties of *Connect* selectable from the *Connect* submenu: with or without newsgroups. This is very useful, as, if you are subscribed to a number of newsgroups, the automatic downloading of text can take a considerable time, and hinder the passage of e-mails.

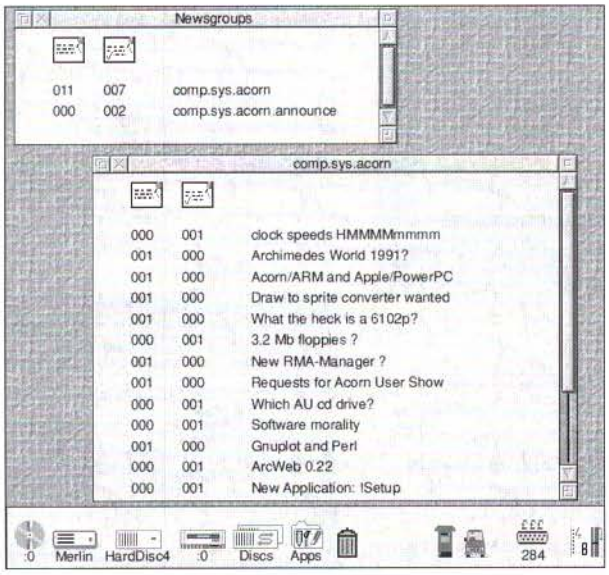


Composing an e-mail with an attached directory.

However, before you can subscribe to any of the newsgroups, you must go on line via the *Newsgroups* option so that InterTalk

can download the latest list. There is a snag with this, in that you have no real way of knowing what is going on - whether the list has started to come through, or whether it has finished. Disc drive and modem activity will give you a clue, but things can go very slowly at times on the Internet, and you might think that the process had finished when it was still in full swing. The only thing to do is to keep burning the pennies until InterTalk or the service provider itself takes you off after a few minutes of inactivity.

The same is true when you are waiting for e-mail to arrive, and here InterTalk should be making use of the 'finger' command to check whether your remote mail server has mail for you or not - and if not it could either inform you, or just take you off line. I also noticed a bug in the pre-release version (0.99) in which the *Disconnect* option on the menu does not actually do anything - Acorn are working on this and other pre-release bugs.



Reading the news.

Mail

Mail is the application which provides the user interface for the client. It is through Mail that you generate or read e-mail messages, or scan the newsgroups. Each user on the system has his own incarnation of Mail in his own subdirectory, and must supply his password before it will load onto the icon bar. Cunningly, if the administrator has only set up one user, the system does not ask for a password before it will install.

Mail itself also has a *Configure* option on its icon bar menu, but this is only to establish directories for incoming and outgoing mail. To write an e-mail, you must unfortunately make use of a separate text editor, such as Edit or DeskEdit.

Once the plain text has been composed, it is dropped as a text file onto Mail's pillar box icon. This opens up an e-mail window, which allows you to supply a destination e-mail address, an optional address or group name for sending copies, and to tick, if you wish, an *Acknowledge* box. If this is ticked, then you will receive an acknowledgement e-mail once the letter has actually been read (or at least opened) on the destination computer.

You can also add RISC OS attachments. By simply dropping a file, a directory or an application onto the e-mail letter window, it will appear at the bottom of the window, and will be sent as part of the e-mail. The recipient, assuming that he is using InterTalk, can simply drag off the attachment to his own filer.

To send your completed e-mail message, just click on *Send*. This will send it to MailServ, and a mail sack will appear beside the van icon to indicate that it has mail to deliver to the Internet postal system. When you next go on line, you should see the sack disappear, indicating that the mail has been sent into the outside world.

By the same token, if mail arrives for any of the clients, his particular pillar box will bulge, and if he clicks on it, he will see a list of incoming e-mails. Those that he has already read have a slightly different icon.

The mail reader window for each e-mail, somewhat unexpectedly, has no menu of its own, but there are four buttons at the top of the window which (rather stupidly) scroll out of view as you read the mail. They allow you to: Reply, Forward, Delete or Save the missive. If you select *Reply*, then a copy of the current e-mail is sent to your text editor prefaced by the words:

In your earlier message you wrote:

A new e-mail window is also opened, with the recipient's address filled in.

This is handy but there are two aspects of Mail which definitely lack sophistication, and which should have been in the spec of the current release. The first is full editing: you should be able to compose your e-mails within a Mail window instead of having to do it in an external editor. Currently, if you spot a spelling mistake in an e-mail that you are creating, you must delete the whole e-mail, go back into your text editor and alter the text, then start the creation process again, dropping the altered text onto the Mail icon, and typing in the destination address etc.

The second is that there is no accompanying address book for e-mail addresses, so that you have to retype the address each time you create an e-mail. This is silly, and prone to error. There should be an address book which lets you double-click on a name to insert the address, and which knows about abbreviated names, so that you can just type *Dave*, and it is replaced by Dave's e-mail address (whoever he is). I understand that Acorn are considering such features for a future release. They should also recode the window redraw routines, which are desperately slow whenever very large quantities of text are involved.

Newsgroups

As we have mentioned, newsgroup articles are read from the Mail application. Clicking on the pillar box icon with Adjust puts up the list of newsgroups that you are currently subscribed to. Against each name there are two numbers: the number of read and unread articles currently stored in the system. Double-clicking on any newsgroup name puts up a list of topics, and you can then double-click on any of these to read an article. If there is a series of articles on a particular topic, InterTalk conveniently displays a list so that you can follow a thread or read articles from a given thread in any order you choose.

The newsgroup reader looks similar in style to the e-mail reader, and has a similar set of buttons at the top of the window which scroll out of view when you scroll the text. The window has no menu, and although there is a button which lets you save the text of any article, you cannot delete individual articles. The only way to get rid of them is to set a time limit in the configure options which automatically deletes all news items older than a certain date. And while this is fine for a multi-user system where administration must be as automated as possible, it lacks the flexibility that single users have the right to expect. As a single user I would like to retain the articles that interest me, and delete the ones which do not.

Again, Acorn are considering these features for their next release. In the mean time InterTalk provides the first stage in getting Acorn users onto the Net. It should be available by the time you read this, with the pre-release bugs all fixed - at least, that's the plan.

Product: InterTalk

Supplier: Acorn Computers
Available from your local dealer including Beebug

Price: Single user £79.00 ex. VAT
Site licence £299.00 ex. VAT

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Pair of pictures produced by the demonstration program on this month's disc. Each is a stereoscopic pair

Stereoscopic 3D

Colin Cassidy gives you three dimensions without the eye strain

3D GLASSES
Free with the magazine disc. Order your disc now.
See disc pages for details

Three dimensional pictures, in the guise of autostereograms, are definitely in fashion at the moment. Indeed, it is no longer possible to leave the safety of one's own home without being bombarded by posters, books, and even postcards of pretty pictures which contain (or so we are assured) three-dimensional images hidden within their subtle curves. RISC User has already published programs to create these images (*Autostereograms*, RU 7:9, and *Stereo Animator*, 8:4 disc). And wherever these pictures are on display, hordes of people gather, cross-eyed, to try to decipher the strange images. But if you are one of the few people left who (try as they might) cannot see these wondrous pictures then take heart, because there is a way of seeing pictures in three dimensions without giving yourself eye strain - using simple coloured glasses.

Actually the idea of viewing stereoscopics pairs of pictures through red and green glasses is not a particularly new one, but demonstrations of the effect on computers always seem to be limited to wire frame models or flat shapes. The problem with creating more life-like images is that they require a range of colours or grey scales which, when translated into a composite red/green image, necessitates a large palette made up of all possible combinations of the red and green scales used. This is not a problem for all you lucky Risc PC owners, but the rest of us need to use a trick called dithering.

Dithering is (as you may well know) a way of appearing to display more colours than your computer can strictly handle, by using patterns of differently coloured dots. If the dots are small enough then they will merge together, appearing to form a single colour. The program presented below as Listing 1 uses an algorithm called Floyd Steinberg dithering which creates a dot pattern by scanning the image pixel by pixel, and choosing colours which are as close as possible to those of the original picture. If the colour chosen for a particular pixel couldn't quite match the original then the error is distributed amongst the surrounding pixels so that, over an area, the colour will appear accurate. So if, for example, a pixel is not as red as the computer would have liked then it will make the surrounding pixels slightly redder to compensate. This technique is known as error diffusion.

Once you have a way of displaying enough colours, then making 3D images is relatively easy, but you will still need a source of stereo pairs (i.e. pairs of images which are formed as if taken one from each eye). Listing 2 provides a simple example of how such images can be generated by computer, but there are a number of other suitable techniques such as raytracing or using a video digitiser - all you need to do is to ensure that the sprites produced are defined in a 16 colour mode, and with a palette. If this is not the case then it is a fairly simple matter to convert them using ChangeFSI (which incidentally makes use of Floyd Steinberg dithering itself).

How it Works

Given a sprite which may contain colour and/or scales of grey, it is possible to simulate the effect of viewing it through a red/green filter by ANDing the bit-image with either pure red or pure green. This works even in normal 256 colour modes, although the result will be poor for the

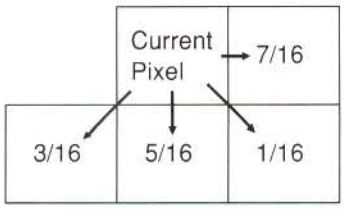


Figure 2.
Distribution of error to surrounding pixels

reason given above - Listing 1 overcomes this problem by storing the images in a similar way to the 24 bit (16 million colour) sprites on the Risc PC. The red and green images can then be combined by simply ORing them together. If you own a Risc PC, then you might like to try following the process just described using Paint and a pair of 16 or 24 bit sprites - it might be a bit fiddly, but should produce good results. To use Paint with these sprites, you will first need to press F12 and type:

```
Set Paint$Options X
```

before running Paint.

Listing 1 is a program which takes a stereo pair of sprites and creates a composite red/green 3D image, which can be viewed using red/green glasses. This image will be displayed on the screen and also saved as a sprite. The names and locations of the two original sprites, and of the output sprite, are specified in lines 120-140 and can be altered to suit your own requirements.

Listing 2 creates a pair of sprites for use with listing 1. It saves these in the current root directory, but you can alter line 310 to save them elsewhere, provided that you remember to alter the pathnames in listing 1 if you want to use the same sprites.

This month's magazine disc contains the Stereo3D program listed here, as well as a program called *Mountain* which creates two views of a fractal mountain landscape for use with Stereo3D.

Listing 1

```
   10 REM             >Stereo3D
   20 REM Program     Stereo 3D Images
   30 REM Version     A1.20
   40 REM Author      Colin Cassidy
   50 REM RISC User   June 1995
   60 REM Program     Subject to Copyright
   70 REM             Not Public Domain
   80 :
   90 MODE 12
  100 OFF
  110 :
  120 file1$="$.Sprite1"
  130 file2$="$.Sprite2"
  140 file3$="$.Output"
  150 :
  160 SYS "OS_File",17,file1$ TO fnd1,,,
,11
  170 SYS "OS_File",17,file2$ TO fnd2,,,
,12
  180 IF fnd1=0 OR fnd2=0 PRINT "File no
t found":END
  190 DIM spr1 l1+4, spr2 l2+4
  200 !spr1=l1+4:spr1!8=16
  210 !spr2=l2+4:spr2!8=16
  220 SYS "OS_SpriteOp",&10A,spr1,file1$
  230 SYS "OS_SpriteOp",&10A,spr2,file2$
  240 sp1=spr1+spr1!8
  250 sp2=spr2+spr2!8
  260 SYS "OS_SpriteOp",&228,spr1,sp1 TO
 ,,,w1,h1,,m1
  270 SYS "OS_SpriteOp",&228,spr2,sp2 TO
 ,,,w2,h2,,m2
  280 IF w1<>w2 OR h1<>h2 OR m1<>m2 PRIN
T "Sprites must be the same size and cre
ated in the same mode.":END
  290 IF sp1!32<>172 PRINT "Can only pro
cess 16 colour sprites with palettes":EN
D
  300 :
  310 l3=w1*h1+64
  320 CASE m1 OF
  330  WHEN 2    : m3=10
  340  WHEN 9    : m3=13
  350  WHEN 12   : m3=15
  360  OTHERWISE : m3=m1+1
  370 ENDCASE
  380 DIM spr3 l3
  390 !spr3=l3:spr3!8=16
  400 SYS "OS_SpriteOp",&109,spr3
  410 SYS "OS_SpriteOp",&10F,spr3,"scree
n",,w1,h1,m3
  420 sp3=spr3+spr3!8
  430 PROCassem
  440 CALL code
  450 MODE m3
  460 SYS "OS_SpriteOp",&122,spr3,"scree
n"
  470 SYS "OS_SpriteOp",&10C,spr3,file3$
  480 END
  490 :
  500 DEFPROCassem
  510 DIM code 1000, buff 1200*8+16
  520 FOR pass=0 TO 3 STEP 3
  530 P%=code
  540 [
  550 OPT pass
  560 STMFD R13!,{R14}
  570 LDR R0,data:LDR R1,data+4
  580 LDR R2,data+8:LDR R3,data+12
  590 LDR R4,data+16:LDR R5,data+20
  600 BL init:BL init
  610 .lp
  620 LDRB R6,[R0],#1
  630 MOV R7,R6,LSR #4:AND R6,R6,#&F
  640 MOV R6,R6,LSL #3:LDR R6,[R1,R6]
  650 MOV R7,R7,LSL #3:LDR R7,[R1,R7]
  660 LDRB R8,[R3],#1
  670 MOV R9,R8,LSR #4:AND R8,R8,#&F
  680 MOV R8,R8,LSL #3:LDR R8,[R4,R8]
  690 MOV R9,R9,LSL #3:LDR R9,[R4,R9]
  700 AND R6,R6,#&FF00:AND R7,R7,#&FF00
```

```
 710 AND R8,R8,#&FF0000
 720 AND R9,R9,#&FF0000
 730 ORR R6,R6,R8:ORR R7,R7,R9
 740 BL cnvrt:MOV R6,R7
 750 BL cnvrt
 760 CMP R0,R2
 770 BLO lp
 780 LDMFD R13!,{PC}
 790 :
 800 .cnvrt
 810 STMFD R13!,{R0-R4,R14}
 820 LDR R0,const+8:SUB R6,R6,R0
 830 LDR R8,[R10]
 840 AND R9,R6,#&FF00:AND R0,R8,#&FF00
 850 ADD R9,R9,R0:TST R9,#&FF0000
 860 ORRNE R6,R6,#&FF00
 870 ANDNE R8,R8,#&FF0000
 880 AND R9,R6,#&FF0000
 890 AND R0,R8,#&FF0000
 900 ADD R9,R9,R0:TST R9,#&FF000000
 910 ORRNE R6,R6,#&FF0000
 920 ANDNE R8,R8,#&FF00
 930 ADD R6,R6,R8:MOV R9,#0
 940 TST R6,#&004000:MOVNE    R9,#&04
 950 TST R6,#&008000:ORRNE R9,R9,#&10
 960 TST R6,#&400000:ORRNE R9,R9,#&20
 970 TST R6,#&800000:ORRNE R9,R9,#&40
 980 AND R8,R6,#&300000
 990 MOV R8,R8,LSR #20
1000 AND R11,R6,#&3000
1010 MOV R11,R11,LSR #12
1020 ADD R8,R8,R11:MOV R8,R8,LSR #1
1030 ORR R9,R9,R8
1040 STRB R9,[R5],#1
1050 LDR R0,const:LDR R1,const+4
1060 AND R9,R6,R0
1070 MOV R11,#7:MUL R8,R9,R11
1080 MOV R8,R8,LSR #4:AND R8,R8,R0
1090 LDR R11,[R10,#4]:ADD R8,R8,R11
1100 STR R8,[R10,#4]:MOV R11,#3
1110 MUL R8,R9,R11:MOV R8,R8,LSR #4
1120 AND R8,R8,R0:LDR R11,[R10,R1]
1130 ADD R8,R8,R11:STR R8,[R10,R1]
1140 ADD R1,R1,#4:MOV R11,#5
1150 MUL R8,R9,R11:MOV R8,R8,LSR #4
1160 AND R8,R8,R0:LDR R11,[R10,R1]
1170 ADD R8,R8,R11:STR R8,[R10,R1]
1180 ADD R1,R1,#4:MOV R8,R8,LSR #4
1190 AND R8,R8,R0:LDR R11,[R10,R1]
1200 ADD R8,R8,R11:STR R8,[R10,R1]
1210 ADD R10,R10,#4:CMP R10,R12
1220 LDMLOFD R13!,{R0-R4,PC}
1230 BL init
1240 LDMFD R13!,{R0-R4,PC}
1250 :
1260 .init
1270 STMFD R13!,{R0-R4,R14}
1280 LDR R2,data+24:LDR R3,data+24
1290 LDR R4,data+28:LDR R1,const+4
1300 ADD R3,R3,R1:ADD R3,R3,#4
1310 MOV R0,#0
1320 .lp2
1330 LDR R1,[R3]:STR R1,[R2],#4
1340 STR R0,[R3],#4
1350 CMP R2,R4
1360 BLO lp2
1370 LDR R10,data+24:LDR R12,data+28
1380 LDMFD R13!,{R0-R4,PC}
1390 :
1400 .data
1410 EQUD sp1+sp1!32:EQUD sp1+44
1420 EQUD sp1+sp1!32+w1*h1/2
1430 EQUD sp2+sp2!32:EQUD sp2+44
1440 EQUD sp3+sp3!32
1450 EQUD buff:EQUD buff+w1*4
1460 .const
1470 EQUD &0F0F00:EQUD 4800
1480 EQUD &101000
1490 ]
1500 NEXT
1510 CLS
1520 ENDPROC
```

Listing 2

```
  10 REM > Demo
  20 REM Program   Stereoscopic 3D Demo
  30 REM Version   A1.10
  40 REM Author    Colin Cassidy
  50 REM RISC User June 1995
  60 REM Program   Subject to Copyright
  70 REM           Not Public Domain
  80 :
  90 MODE 12
 100 OFF
 110 FOR c=0 TO 15
 120  COLOUR c,c*17,c*17,c*17
 130 NEXT
 140 COLOUR 128+15:CLS
 150 COLOUR 0
 160 :
 170 rng=50000
 180 ORIGIN 640,512
 190 n=1
 200 FOR ofx=-5000 TO 5000 STEP 10000
 210  CLS
 220  r=RND(-1):a=0
 230  FOR ofz=300 TO 60 STEP-.15
 240   x=(rng*COSa+ofx)/ofz
 250   y=(rng*SINa)/ofz
 260   a+=.5
 270   GCOL RND(15)
 280   CIRCLE FILL x,y,100
 290  NEXT
 300  OSCLI("SCREENSAVE $.Sprite"+STR$(
n))
 310  n+=1
 320 NEXT
```

Mini Reviews

Alan Bonsor examines yet another PD CD, and spends the night at the movies

The Datafile PDCD2

The fact that an ever increasing number of public domain CDs are being released can be interpreted in two ways: firstly, that there is enough PD software to justify the number of CDs; secondly, that there's a seriously large amount of shovelware available. Datafile's Public Domain CD Volume 2 unfortunately falls into the latter category.

The CD-ROM contains 420Mb of applications and files that can roughly be divided into the following categories:

Commercial demos	**7.5Mb**
Utilities	**22Mb**
Sound tracker and Symphony tunes	**156Mb**
Sound samples	**29Mb**
Maestro files	**2Mb**
Images	**33.5Mb**
Tiff/Gif/JPEG	**73.5Mb**
Entertainment	**83Mb**

Most of the scanned sprite images are in my view shockingly poor - blurred, fuzzy, duplicated and totally useless. The same can also be said of the Draw and Artworks images, and unfortunately the TIFF, GIF and JPEG files fare little better. In fact the only good quality JPEG files I could find in the collection appeared a short while ago on the cover CD-ROM of a well-known PC magazine. That disc at least contained a large selection of quality images.

Tom Cooper's excellent version of Styx

The entertainment section includes a variety of Ace films; a selection of Mark Twain books in text format; around 30 graphics and sound demos of which only one - the BlackZone Megademo - is really outstanding; a selection of Fractal generating programs, and around 45 games, of which the majority of the ones I tried are awful and screw up your system configuration. One or two good games are present - Tom Cooper's Dinosaw and Styx stand out as beacons of excellence. These are rounded off with a dozen or so ray-traced animations which have been around since the early days of Clare's Render Bender, a few poor morphing examples and the usual selection of desktop sillies.

Fifteen applications are included in the commercial demos section. Most of them are distinctly long in the tooth - Poster, Archivist, Pipedream 4 and smArt?

To make matters even worse, out of the 200 or so utilities, not one would fit into my 'must have' category.

In my view this disc is unfortunately a perfect example of shovelware and I can find almost no redeeming features. I have copied only 2 things from it onto my hard drive - BlackZone, which really is a remarkable demo, and Tom Cooper's Styx, an excellent implementation of the classic game which is let down by the fact that it sports only 5 backdrop screens.

Verdict - Definitely one to avoid.

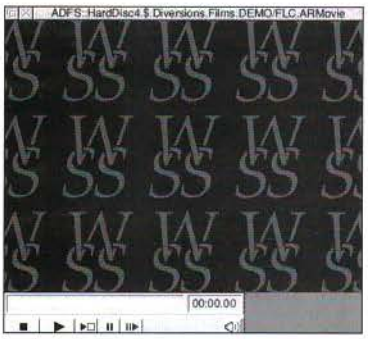
Datafile PDCD2

Supplier	**Datafile** **71 Anson Road** **Locking** **Weston-Super-Mare** **Avon** **BD24 7DQ** **Tel. & Fax. 01934 823005**
Price	**£36.00 inc. VAT**

MovieFS - The Movie Filing System

There are several applications which Acorn must seriously consider building into the next version of RISC OS or whatever operating system it decides on for its future computers. One of them is ImageFS, the very useful image translator. Another should be an archiving utility such as SparkFS or ArcFS, and the third a utility to read and write Macintosh discs such as MacFS or AppleFS. A fourth 'FS' can now be added to this list: MovieFS.

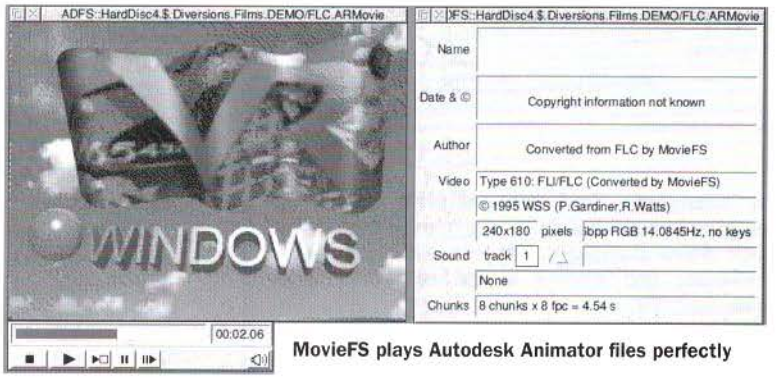
When I reviewed the Acorn Replay Starter Kit several issues ago, I mentioned that Acorn would be launching a new version of ARPlayer which would play Microsoft AVI and Apple Quicktime MOV movies in addition to Replay and MPEG films. This was what I had been led to believe; it hasn't quite turned out this way - it has not been released by Acorn.



ARPlayer's start up screen - the only thing that tells you that MovieFS is running

MovieFS has been developed by Warm Silence Software in conjunction with Acorn and is an amazing piece of software. In addition to handling the promised AVI and MOV formats, it also translates Autodesk Animator FLI/FLC files - vector animations similar to Ace films - and WAV sound samples. However, rather than being a totally new version of ARPlayer, it plays the foreign movie formats through the existing versions

Spot the odd one out. MovieFS icons for MOV, AVI and FLI films



MovieFS plays Autodesk Animator files perfectly

of ARPlayer. MovieFS does for movie formats what ImageFS does for images. Double-click on an AVI, Quicktime, FLI/FLC or WAV file and it will play through ARPlayer as if it were a Replay film. Shift double-click and a Filer window will open containing the Replay version of the film, allowing you to convert the file permanently. This is very useful if you want to send the film to someone who doesn't own MovieFS.

MovieFS currently supports the following AVI and MOV formats, in addition to FLI/FLC and WAV files:

CRAM8 AVI
CRAM16 (SuperMac Cinepak) AVI
CVID AVI/QT
RPZA QT
SMC (SuperMac Cinepak) QT
Ultimotion AVI
RGB8 AVI
RLE8 AVI
RGB24 AVI
RLE(8) QT
RLE(16)
FLI/FLC Autodesk Animator
WAV sound samples

This is a very comprehensive list and I have found few AVI or MOV files which would not play. The most important format which is still uncatered for is the AVI Indeo format used, for example, by the AVI movies on the Encarta 95 disc. According to one of the authors, Robin Watts, Warm Silence Software are currently waiting for Acorn to obtain the Indeo format specifications so that they can incorporate this into a future version.

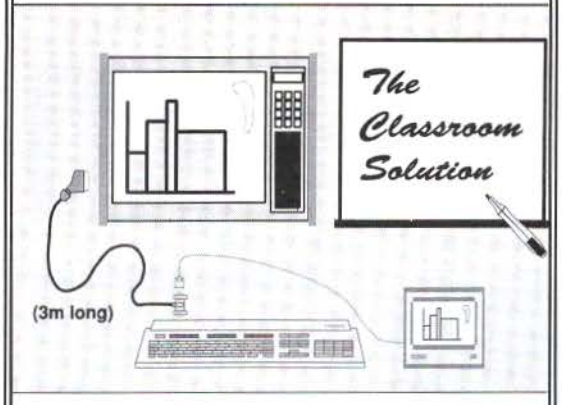
Using MovieFS

Setting up MovieFS involves copying several 'decompression' directories into the ARMovie directory. These directories contain the 'interfaces' which enable ARPlayer to decode different movie and sound formats. Once you've done this, it's simply a case of copying the MovieFS application into a suitable directory where it will be seen and run when you turn the computer on. From now on the whole process of playing foreign movies is transparent. Well almost.

Before you can play a movie through MovieFS, you need to give it the AVI filetype (FB2) irrespective of

Continued on page 56

TV SPLITTER CABLES
FOR THE CLASSROOM



A complete and inexpensive range of cables is now available - designed in association with Acorn Computers Ltd - to allow any Acorn computer and monitor to be connected to a classroom TV.

Classroom demonstration software (such as ***Autograph***) ideally needs a large screen. Many classrooms already have a TV for video playback, and most TVs now have a SCART connection at the back: this gives a **bright, crisp image** using the R•G•B signals directly - and you can write on the screen with a white-board marker pen.

❍ 3m SPLITTER CABLES:
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TYPE 1:	15-pin to multi-sync monitor	£16
TYPE 2:	15-pin to medium res. monitor	£16
TYPE 3:	9-pin to medium res. monitor	£16

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TIPS & HINTS

Keep sending in your hints on anything relevant to the Archimedes range.
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Avoid Oversized Disc Labels
Alan Wrigley

Last month I warned of the dangers of putting Tippex on disc labels. I've now come across another potential nasty - disc labels that are too wide for the disc. Disc labels should be restricted to the sunken area on the disc casing, which is intended for this purpose. If you use a label which is wider than this area, there is a greater danger that the edges of the label can become raised with handling, and this could result in small sections of the label getting torn off inside the drive. Even worse are labels that are too wide for the whole disc, and are wrapped around the sides. I had to use long-nosed pliers to extract a disc from my drive recently after the edge of the label got caught in the mechanism.

Menu Width under RISC OS 3.5
Graham Crow

With the Risc PC (RISC OS 3.5) menu widths are automatically adjusted to reflect the length of the longest item, taking into account the desktop font currently in use. This is not the case with earlier operating systems, so if you are writing programs to run on all versions of the operating system you will still need to calculate the width explicitly based on the system font.

Justification on Menu Items under RISC OS 3.5
Alan Wrigley

Many menus have keyboard shortcuts added to them, which have conventionally been right-aligned by the programmer, by adjusting the number of spaces in the menu item string. You may have noticed that on the Risc PC, the shortcuts are still miraculously right-aligned even though a proportional font is used. This is because the Wimp recognises a shortcut string and positions it in the correct place. For this to happen, the shortcut part of the menu item must be separated from the rest by at least one space, it must be a non-writable item, and it must either start with a Shift or Ctrl modifier (i.e. ^ or up arrow), or be a recognised key name (e.g. F1 to F12, Esc, Print, Copy and so on). Key names may be in upper or mixed case (e.g. Insert or INSERT). A full list of recognised entries is given in Volume 5 of the PRM (page 201).

Limiting Window Movement to Screen Boundaries

Keith Vernon

Sometimes it can be useful to be able to stop windows temporarily from moving beyond the screen boundaries, though you may not necessarily always want this to be the case. The ability of windows to be moved beyond the bounds of the screen is controlled by a configuration setting, so by putting two little Obey files on your Pinboard, you can swap between the two states quickly and easily. The configuration takes effect immediately - you don't need to press Ctrl-Break first. The command which sets or unsets window limiting is:

```
Configure WimpFlags n
```

where n has bit 6 set to allow windows to be dragged off screen in all directions, or unset to prevent this happening. The Obey files could be called *LimitOn* and *LimitOff*, and each will contain a single line with the above command.

The other bits have different effects (e.g. solid window dragging etc.), and so assuming that you don't want to disturb the other settings, you should first read the value of *WimpFlags* (by pressing F12 to get to the command line and then typing *Status*). You then AND this value with 159 to get the value for the *LimitOn* file, and OR it with 96 for *LimitOff*. So if for example your current setting is 15, then your *LimitOn* file would read:

```
Configure WimpFlags 15
```

and the *LimitOff* file:

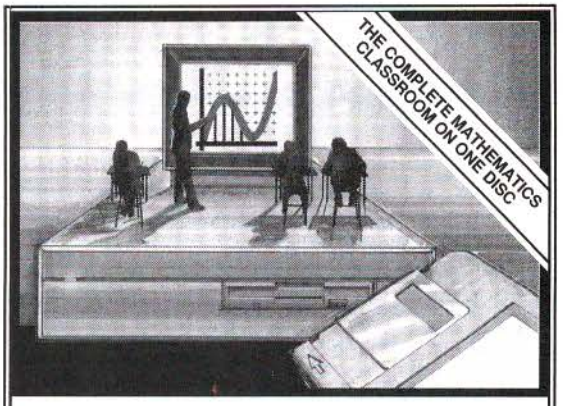
```
Configure WimpFlags 111
```

Using Null-terminated Strings in Basic

Alan Wrigley

One of the most annoying features of using SWI calls from Basic is that so many of them return null-terminated strings, which cannot be read in Basic (Basic only recognises a carriage return as a valid string terminator). The usual method of dealing with this is to include a function in the program which scans the returned string and replaces the terminator with a carriage return. However, there is an easier way! It relies on the fact that you can specify a string variable as one of the register parameters when using SYS to make a SWI call from Basic. If you can find a SWI that takes a string pointer and returns that pointer preserved, you can pass the address of the null-terminated string on entry, and pick it up in a Basic string variable on exit.

Of course, you must also use a SWI that doesn't actually do anything - is there such a thing? Indeed there is! If you use *OS_WriteN*, which prints a counted string to the screen, and tell it to print zero bytes of the string, all your criteria are



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met. Suppose you have just received a null-terminated string in *block%* (perhaps from *OS_ReadVarVal* or something). If you call:

```
SYS "OS_WriteN",block%,0 TO text$
```

your string will now be held in *text$*.

Calculating Interest

A G Rimmer

The RISC User 8:3 disc contained a program for calculating simple and compound interest. In certain circumstances this can produce an incorrect result. The program can be corrected by replacing lines 1290-1360 with:

```
1290 @%=&102021F
1300 SI=C*R*D%/100:x=1+R/36500:t=D%
1310 CASE $time% OF
1320  WHEN "years":t=365*t
1330  WHEN "months":SI=SI/12:t=365*t/12
1340  OTHERWISE:SI=SI/365
1350 ENDCASE
1360 $simple%="£"+STR$(SI):$compound%="
£"+STR$(C*(x^t-1))
```

and deleting lines 1370 and 1410-1440.

Using Sound Samples with ErrorBox

Alan Wrigley

If you are using the *ErrorBox* routines published in last month's *Wimp Topics*, you might like to know that you can easily incorporate your own sounds into your error messages. If you have sound samples, they can be played when an error occurs instead of the normal beep. The simplest way to do this is to attach the voice containing the required sound to sound channel 1, for example:

```
ChannelVoice 1 10
```

However, this will cause the sound to be used for the beep by other applications, even after your program has quit.

A better method would be to use separate sound channels, which would also enable you to use different sounds for different errors. To do this, you must first allocate a channel to each voice, as follows:

```
*ChannelVoice <channel> <name>
```

Now tell Basic how many channels you want to use:

```
VOICES <number>
```

Finally make two modifications to *FNmsg* in the ErrorBox routines. Firstly, add a new parameter *channel%*. Then change the line near the start of the function which reads:

```
SOUND 1,-sound%,50,4
```

to:

```
SOUND channel%,-sound%,50,4
```

You must now call the function with the required channel number as the additional parameter.

Reconfiguring After Badly-Behaved Games

Darren Grant

A recent hint (RISC User 8:3) stated that some games reset the CMOS RAM so that on Ctrl-Break all you will get is the Supervisor screen, and the only way to reset the computer to start up in the desktop is to do a full reset (R-power-on, Delete-power-on etc.). There is in fact an easier way - simply type at the star prompt:

```
Configure Language 10
```

and then perform a Ctrl-Break. You can now reload your configuration file in the normal way.

Backing up Different Disc Formats

Douglas Boote

This hint will be obvious to seasoned users, but it may just save some newcomers from a lot of head-scratching. If you use high density floppy discs, you cannot make backup copies directly from a disc of a different format. But you *can* copy the source disc to the RAM disc, and then copy from the RAM disc to the destination disc. You would then have room to combine two E format discs on one high density disc, or add other resources.

If you haven't tried using a RAM disc before, here is what you do: first click on the Task Manager icon to open the *Tasks* window. Near the bottom you will see an entry for the RAM disc. Drag out the slider to the required size (always allow a little more than you think you need, as you can't alter the size once it has files in it). You should see a *RAM* icon on your icon bar, and clicking on this will open the root directory. You can now use it just like any other disc.

Converting PC Fonts

Henry Morgan

In *Hints & Tips* (RISC User 8:5) Dave Wilcox suggested changing filetypes manually when using T1ToFont, so that the latter would recognise the file(s) correctly. A simpler way to do this is to add the following line to your desktop boot file:

```
DOSMAP PFB &FF5
```

This ensures that every DOS file that has the extension .PFB and is on a DOS disc will be set to the PoScript filetype. If the source is a CD-ROM, then you would have to use the PD application *FileTypes* that maps CD DOS extensions to RISC OS filetypes.

TECHNICAL QUERIES

Alan Wrigley answers more of your questions

Q *When using the ChannelVoice command to allocate voices to a sound channel, is there a way for a program to restore the original voice afterwards?*
Paul Roberts

A Using *ChannelVoice* is fine from the command line, as you can first use the *Voices* command to read the existing mapping, and then restore it manually afterwards if you require.

If you are altering the voice allocation from within a program, it is preferable to use a different method, so that the status quo can be restored when your program quits. In fact, since other applications may want to use the sound system while yours is running, you should really restore it immediately after issuing the sound.

To do this, you need to use SWI calls. First of all, you may need to activate more than the single default sound channel. In Basic you can use:

```
VOICES n
```

where n is the number of channels you want to use. In other languages, you need to use SWI *SoundConfigure*. The number of channels is passed in R0, but the call sets other parameters as well. So you must first make the call with zero in all registers to read the existing settings, then pass these back in a second call, but with the number of channels substituted in R0. For example, in Assembler:

```
MOV R0,#0:MOV R1,#0:MOV R2,#0
MOV R3,#0:MOV R4,#0
SWI "SoundConfigure"
MOV R0,#channels
SWI "SoundConfigure"
```

Alas there is no call to read directly which voice is installed on a particular channel, but you can achieve your purpose by first finding out which voice slot contains the voice you want to use, then attaching that slot to a channel and reading the previous setting at the same time. It's then a simple matter to restore the original slot when you've made your sound. As an example, suppose you want to use *Percussion-Soft* on channel 2. The following code will do this:

```
new%=0
REPEAT
 new%+=1
 SYS "Sound_InstallVoice",0,new% TO ptr%
 SYS "OS_WriteN",ptr%,0 TO a$
UNTIL a$="Percussion-Soft" OR ptr%=0
IF ptr% THEN
 SYS "Sound_AttachVoice",2,new% TO ,old%
ELSE
 ERROR 1 "Voice not found"
ENDIF
REM make your sound here
SYS "Sound_AttachVoice",2,old%
```

This piece of code first uses Sound_InstallVoice 0 to cycle through the voice slots looking for the one holding Percussion-Soft. The slot number will now be in *new%*. Sound_AttachVoice attaches this slot to channel 2 and reads the original slot into *old%*. After making the sound, the same call restores *old%* as the attached slot.

Q *There seem to be many features of the Risc PC I would like to use, such as outline fonts on the desktop and dynamic memory areas, but I would like my programs to work on older machines as well. Is there a really simple way of doing this?*
David Massey

A It's not difficult to determine which machine a program is running on, but it's not usually easy to make use of the newer facilities in more up-to-date models without writing separate routines and then calling the appropriate one. Sometimes this may be quite trivial, while at other times you may need quite a lot of extra code to handle different situations.

There are several ways of finding out which version of RISC OS is in the machine. One of the simplest is to use an OS_Byte call as follows:

```
SYS "OS_Byte",129,0,255 TO ,os%
```

after which os% will contain a value between &A1 and &A5. This indicates the version of RISC OS as follows:

&A1	2.00
&A2	2.01
&A3	3.00
&A4	3.10
&A5	3.50

You can now arrange for your code to cater for the version it finds when the program is run (don't forget that later versions may have values above &A5, so allow for this if necessary).

In the case of dynamic area memory management, as our article last month indicated, it may just be a case of calling the appropriate SWIs instead of calling the RISC User heap manager (if that's what you used previously). This would require very little extra code. In the case of desktop fonts, however, there is no really simple way, and if you wanted to display text in either system font or an outline font depending on whether the machine is a Risc PC or not, you would need two separate pieces of code in your redraw routine. Next month's *Wimp Topics* will address this very issue, and show you how to tailor your display to make use of the desktop font where there is one.

Wimp Topics - Dynamic Font Menus

Richard Mawhood shows you how to handle font menus in your programs

Most desktop programs which display or output text allow the user to choose any available font by means of a standard font menu. This facility is a feature of all major packages, but it can quite easily be provided in your own programs. In fact, this is an ideal case for a suite of library procedures and functions, as the aim is the same whatever the program: to display the font menu and submenus in the usual way, as in Draw, Edit, Impression etc, allowing the choice of any font and font weight in a single selection. The font menu must also reflect any changes in the list of available fonts whenever it is displayed.

If you compare the standard font menu with the contents of your Fonts directory, you will quickly appreciate that the menu entries bear a direct relationship to the pathnames of the directories in which the font files are stored. For example, the font files for Homerton Medium Oblique are stored (under RISC OS 3) in the directory *Resources:$.Fonts.Homerton.Medium.Oblique*. When you select this font, the first part of the pathname is supplied by the system variable *Font$Path* (to see this, press F12 and type *Show Font$Path*), and the rest is derived from the font menu. So how does that bit get into the font menu? There is a SWI call, *Font_ListFonts*, which supplies the latter part of the pathnames of any font which it can find (via Font$Path). Using this call, we can read into a buffer all the information needed for the font menu and submenus. A library of routines for implementing this is given in listing 1 below.

Building the Menus

In the listing *PROCfont_createmenu* is the procedure which both buffers the font list and creates the main font menu structure. If a font has various styles or weights, then as well as providing a pointer to the submenu structure, we must remember to set a flag to trigger a *MenuWarning message*, as the submenu must be created 'on the fly'. This is because the contents of the submenu will vary from font to font. To speed up the building of the submenu, pointers are set to address each font family in the font list buffer.

When the program receives the *MenuWarning* message, *PROCfont_createsubmenu* must be called to build the appropriate menu structure. The data is obtained from the font list buffer via the pointers mentioned above.

Buffering the font list can cause a noticeable delay if there are a lot of fonts in the list. Rather than read in this information every time the user opens the font menu, it makes sense to do so only if the list of available fonts has changed. This is done by reading the system variable *Font$Path* on start-up, and again whenever the font menu is to be opened. If there is no change, the font menu is displayed without more ado; otherwise the font list is read again, and the font menu recreated.

Memory management

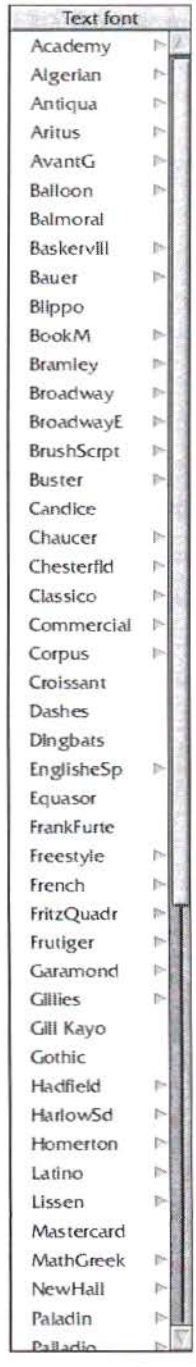
How should all this information be stored? You could DIMension a permanent block large enough for all eventualities (assuming you know what the maximum number of fonts will be). However, the best solution would be to use the Heap Manager (RISC User 7:5) to handle the memory blocks, so three functions are provided to communicate with the Heap Manager:

FNfont_initialisemenu,
which sets up the memory blocks needed

FNfont_preparemenu,
which enlarges or shrinks the blocks according to the number of fonts available

PROCfont_closedownmenu,
which frees the reserved memory

Although in these library routines it would be possible to make all the variables local, a few global variables are used in order to simplify the calling program



and reduce the number of parameters passed. They are:

font_ptrs%()	an array of pointers to font families in the list buffer
font_path$	the pathname last read in the Font$Path
font_block%	a 256-byte block to read Font$Path & font pathnames
font_list%	the buffer for the complete list of fonts
font_menu%	the font families menu structure
font_submenu%	the font styles menu structure
font_sysfont%	a flag: 1=include system font, otherwise 0

Your own Programs

What code will you need to include in your own programs? Your startup routine must call *FNfont_initialisemenu*, which returns the number of fonts available:

```
fonts%=FNfont_initialisemenu(sysfont%)
```

where *sysfont%* is either 1 or 0, depending on whether you want System Font to appear in the menu.

Remember to call *PROCfont_closedownmenu* in your shutdown code.

For the rest, it depends on whether the font menu is a separate menu which is displayed in response to a button click on an icon, or whether it is part of a bigger menu structure which includes an item (e.g. *Fonts*) which leads to the font menu. If the font menu is a separate menu, you should use the following code in response to a click on the font menu icon button:

```
menuopen%=font_menu%
fonts%=FNfont_preparemenu(fonts%)
PROCdisplay_menu(menuopen%,x%,y%)
```

The styles and weights submenu should be opened when a MenuWarning message is received from the Wimp, thus:

```
DEF PROCreceive
CASE block%!16 OF
 WHEN 0:quit%=TRUE
 WHEN &400C0:x%=block%!24:y%=block%!28
 IF block%!20=font_submenu% THEN
  font%=block%!32:PROCfont_createsubmenu
(font%)
  SYS "Wimp_CreateSubMenu",,font_submenu
%,x%,y%
 ENDIF
ENDCASE
ENDPROC
```

In your routine which deals with menu selections, the following will place the chosen font into the variable *font$*, which can be used in a call such as SYS "Font_FindFont":

```
DEF PROCmenu
SYS "Wimp_DecodeMenu",,menuopen%,block%,
choicebuffer%
item$=$choicebuffer%
CASE menuopen% OF
 WHEN font_menu%
 IF INSTR(item$,".") OR font_menu%!(32+
24*!block%)=0 THEN font$=item$
ENDCASE
SYS "Wimp_GetPointerInfo",,block%
IF block%!8=1 THEN PROCdisplay_menu(menu
open%,x%,y%)
ENDPROC
```

If the font menu is a submenu, then because the font menu is accessed from the main menu, *PROCcreate_fontmenu* must be called when the user moves the pointer over and to the right of the *Fonts* item in the main menu. This item must therefore have the *MenuWarning* message flag set, and *PROCreceive* (i.e. your procedure that decodes Wimp messages) must be able to distinguish between this message and the one to open the font weights and styles submenu. Menu selection code is almost identical, however. These procedures will look like this:

```
DEF PROCreceive
CASE block%!16 OF
 WHEN 0:quit%=TRUE
 WHEN &400C0:x%=block%!24:y%=block%!28
 CASE block%!20 OF
  WHEN font_submenu%
  font%=block%!36:PROCfont_createsubmenu
(font%)
  SYS "Wimp_CreateSubMenu",,font_submenu
%,x%,y%
  WHEN font_menu%:fonts%=FNfont_prepare
menu(fonts%)
  SYS "Wimp_CreateSubMenu",,font_menu%,x
%,y%
 ENDCASE
ENDCASE
ENDPROC

DEF PROCmenu
SYS "Wimp_DecodeMenu",,menuopen%,block%,
choicebuffer%
item$=$choicebuffer%
CASE menuopen% OF
 WHEN mainmenu%
 CASE FNfirst(item$) OF
  WHEN "Fonts":item$=FNrest(item$)
  IF INSTR(item$,".") OR font_menu%!(32+
24*block%!4)=0 THEN font$=item$
 ENDCASE
ENDCASE
SYS "Wimp_GetPointerInfo",,block%
IF block%!8=1 THEN PROCdisplay_menu(menu
open%,x%,y%)
ENDPROC
```

The demonstration program on this month's magazine disc illustrates both of these methods, and also lets you switch between a menu with System Font and one without.

NB: *FNfirst*, *FNrest* and *PROCdisplay_menu* are functions in the RISC User Wimp Procedure Library (which is included on the magazine disc). The procedures and functions which follow also include calls to other procedures in this library - *PROCinit_menu* and *PROCmenu_item* - as well as calling *FNallocate* and *PROCdeallocate*, which are part of the Heap Manager already mentioned (also on the magazine disc).

Listing 1. Font menu library procedures and functions

```
 1000 DEF FNfont_initialisemenu(sysfont%
)
 1010 LOCAL fonts%
 1020 DIM font_ptrs%(255),font_block% 25
6
 1030 font_sysfont%=sysfont%
 1040 font_path$=FNfont_readpath
 1050 fonts%=FNfont_count
 1060 font_submenu%=FNallocate(36+24*8)
 1070 font_menu%=FNallocate(36+fonts%*24
)
 1080 font_list%=FNallocate(8+fonts%*40)
 1090 PROCfont_createmenu(fonts%)
 1100 =fonts%
 1110 :
 1120 DEF PROCfont_closedownmenu
 1130 PROCdeallocate(font_list%)
 1140 PROCdeallocate(font_menu%)
 1150 PROCdeallocate(font_submenu%)
 1160 ENDPROC
 1170 :
 1180 DEF FNfont_count
 1190 LOCAL done%,fonts%
 1200 done%=0
 1210 REPEAT
 1220  fonts%=done%
 1230  SYS "Font_ListFonts",,font_block%
,done%,-1 TO ,,done%
 1240 UNTIL done%=TRUE
 1250 =fonts%+font_sysfont%
 1260 :
 1270 DEF FNfont_readpath
 1280 LOCAL len%
 1290 $font_block%="Font$Path"
 1300 SYS "OS_ReadVarVal",font_block%,fo
nt_block%,256,,3 TO ,,len%
 1310 font_block%?(len%)=13
 1320 =$font_block%
 1330 :
 1340 DEF FNfont_preparemenu(fonts%)
 1350 LOCAL path$,count%
 1360 path$=FNfont_readpath
 1370 IF font_path$=path$ THEN =fonts%
 1380 font_path$=path$
 1390 count%=FNfont_count
 1400 IF count%<>fonts% THEN
 1410  fonts%=count%
 1420  PROCdeallocate(font_list%)
 1430  PROCdeallocate(font_menu%)
 1440  font_menu%=FNallocate(36+fonts%*2
4)
 1450  font_list%=FNallocate(8+fonts%*40
)
 1460 ENDIF
 1470 PROCfont_createmenu(fonts%)
 1480 =fonts%
 1490 :
 1500 DEF PROCfont_createmenu(fonts%)
 1510 LOCAL width%,end%,f%,fptr%,fno%
 1520 LOCAL sub%,link%,cfont$,font$
 1530 width%=0:end%=0
 1540 PROCinit_menu(font_menu%,width%,en
d%,"Font List")
 1550 fptr%=font_list%:fno%=0
 1560 f%=&7000021:cfont$=""
 1570 IF font_sysfont% THEN
 1580  font$="System Font"
 1590  PROCst_menu_item(font_menu%,width
%,end%,font$, 0,1,0,0,0)
 1600  $fptr%=font$:font_ptrs%(fno%)=fpt
r%
 1610  fno%+=1:fptr%+=12
 1620 ENDIF
 1630 FOR l%=0 TO fonts%-1-font_sysfont%
 1640  SYS "Font_ListFonts",,fptr%,l%,40
 1650  font$=$(fptr%)
 1660  sub%=INSTR(font$,".")
 1670  IF sub% THEN font$=LEFT$(font$,su
b%-1):sub%=1
 1680  IF font$<>cfont$ THEN
 1690   IF sub% THEN link%=font_submenu%
 ELSE link%=0
 1700   PROCmenu_item(font_menu%,width%,
end%,font$,0,0,0,0,link%,0,sub%,f%,0,0,
0)
 1710   cfont$=font$
 1720   font_ptrs%(fno%)=fptr%:fno%+=1
 1730  ENDIF
 1740  fptr%+=LEN($fptr%)+1
 1750 NEXT
 1760 end%!-24=end%!-24 OR &80
 1770 ENDPROC
 1780 :
 1790 DEF PROCfont_createsubmenu(font%)
 1800 LOCAL width%,end%,f%,fptr%
 1810 LOCAL font$,style$
 1820 font$=$(font_menu%+40+24*font%)
 1830 width%=0:end%=0
 1840 PROCinit_menu(font_submenu%,width%
,end%,font$)
 1850 f%=&7000121
 1860 fptr%=font_ptrs%(font%)
 1870 WHILE FNfirst($fptr%)=font$
 1880  fptr%+=INSTR($fptr%,".")
 1890  style$=$fptr%
 1900  IF style$<>font$ THEN PROCmenu_it
em(font_submenu%,width%,end%,style$,0,0,
0,0,0,0,0,f%,fptr%,-1,LEN(style$)+1)
 1910  fptr%+=LEN($fptr%)+1
 1920 ENDWHILE
 1930 end%!-24=end%!-24 OR &80
 1940 ENDPROC
```

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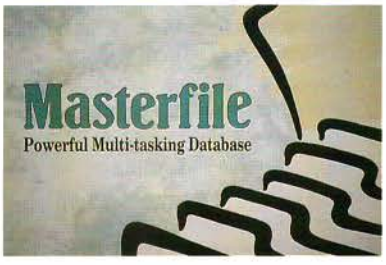

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C++ Development System

Easy C++ is an excellent implementation of the in-vogue object oriented programming language C++. This implementation conforms to the latest Stroustrup text and supports both Templates and Exceptions. Unlike some other implementations, Easy C++ is not a C++ to C translator but compiles C++ source directly to ARM code making it quick and easy to use.
Easy C++ uses the much praised Easy C WIMP interface which allows programs to be compiled, linked and run at the click of a button. The package includes ANSI C and IOStream libraries, Make facility, integrated ARM assembler, source level debugger and also supports Throwback. The original highly acclaimed Easy C package is also still available.

EASY C++ Price £99 + £2.70 Carriage

EASY C Price £59 + £2.70 Carriage

TypeStudio

Flexible Font Effects

TypeStudio is the best selling font effects package that allows outline fonts to be manipulated to produce professional quality posters, banners, logos, letterheads etc. — the possibilities are endless.
Text may be flowed along straight or curved paths, or moulded into almost any shape. A wide range of interesting effects may then be applied to enhance the design further. These include: wall, floor and graduated shadow, 3D text, mirror, plinth, slant. You can use all of these effects on Draw files too! TypeStudio is intuitive to use, and unlike some other packages, paths and moulds may be created and edited using the drawing tools provided, so you can do all your design work using just the one package.

TYPESTUDIO Price £29 + £1.70 Carriage

Hearsay

Advanced Communications

Hearsay is the definitive general purpose communications package for Acorn systems, designed for easy communications for the first time user, but with advanced features making it also the professionals choice.
Hearsay provides high quality VT terminal emulations, and is ideal for use with Prestel, Campus 2000, Compuserve and virtually all bulletin board systems. Other features include: background file transfer, number directory, script language and support for popular modems.

HEARSAY Price £75 + £2.70 Carriage

Hard Disc Companion

Reliable Hard Disc Backup

Hard Disc Companion is the acclaimed package that provides a structured system for backing up hard drives to floppy discs and other devices.
It supports Full and Incremental backups with data compression. Files to be backed-up or ignored are chosen using simple drag operations. The backup specification may be saved in a script file for use at a later date.
In the event of disc failure or accidental file deletion, files may be retrieved using simple drag operations.

COMPANION Price £45 + £1.70 Carriage

BEEBUG

Beebug Ltd. 117 Hatfield Road, St. Albans, Herts. AL1 4JS Tel. 01727 840303 Fax. 01727 860263
Please add VAT to all prices. Telephone order hotline 01727 840305

Netline

Our regular column on the Internet, by Alan Wrigley

How secure is the Internet? It's a question that's often asked these days, particularly by newcomers to the Net who have read all the media scare stories about hackers. Every now and then a new story comes along (which in fact is probably an old one endlessly recycled) that tells of a new virus spreading across the world via newsgroup messages, or of a dedicated hacker sitting by his machine syphoning off Internet traffic in order to decode your ID or your credit card number.

Security *is* a potential problem, and you would be well advised to be aware of certain things, but in general the Net is no more or less secure than any computer network, or indeed any communications system devised by humans for public use. The newsgroup virus story can be discounted straight away - there is no known virus that can spread by means of text files. Provided you don't ftp files to your machine, or extract uuencoded applications from your mail, there is no way you can catch a virus. The dedicated hacker is more of a problem, but thankfully such incidents are rare. Even if a hacker found your ID details, he could do little damage to your machine or your data.

If you *do* receive files by ftp or mail, then you must obviously take the same precautions against viruses just as if you were receiving them on disc from any unknown source. A properly run ftp site is unlikely to spread viruses because programs will be checked before they are allowed onto the site, but it's not impossible for one to slip through. Uuencoded programs received via e-mail should be treated with caution, since even if the sender had no malicious intent, a virus could be lurking in the file without his knowledge.

When you are on line via a full dial-up Internet account (or as a station on a network connected to the Net), then your computer is a part of the Net. This means that it is visible and accessible to anyone else on line at the time. Anyone can telnet to your computer, or attempt to ftp from it. With an Acorn, this is not as dangerous as it sounds. If you are using TCPIP, for example, other people can't ftp to your computer unless you have set it up specifically to let them do so. Even if you are providing ftp facilities, you can restrict access to a specific directory on your system, and it will be impossible for anyone to gain access to other areas. Inside the *!TCPIPUser* directory is a subdirectory called *FTP*. To allow ftp to your site, this must contain a file called *Users*, which holds details of who is allowed to access your machine and where they can get to. For example, to allow anonymous ftp to a directory *Public* which is in your root directory, the file need only contain the following line:

```
anonymous * $.Public 3
```

You may well find that TCPIP has come with this set up already. As an added safeguard, you will see a message if anyone does try to ftp to you.

Even if you feel secure, it's still worth remembering that you are just a gateway onto a global network, and it's up to you to ensure that the gate is not left open. If you think anything odd is happening while you're on line, it's probably a good idea to disconnect.

Another aspect of security on the Net concerns the growing use of the Web for commercial purposes. This raises the question of whether it's safe to quote your credit card number on line if you want to order something. Generally speaking, it's not a good idea to give your card number via e-mail. Hackers can and do intercept e-mail, and although it doesn't happen often, you don't want to be the one who gets caught out. On the Web, secure methods of online payment are being developed, but it's still early days yet. Some companies are taking orders via the Web, but then phoning to confirm the order and take the card number. Until a foolproof method of transfer emerges, it might be safest to stick with companies that adopt this method for the time being.

Service with a Smile

A good many RISC User readers are now on line, but how many of you, when you dial that

magic number and hear the tone on your modem, wonder what actually goes on at the other end? I certainly did, and so I went along to my local Internet Provider, U-Net in Warrington, to find out a little more.

U-Net is one of the smaller providers that are now mushrooming around the country. At present it only has a local PoP, but this serves Manchester and Liverpool as well as many heavily-populated areas in Lancashire and Cheshire. The technical side of the company (there's also a sales and admin section) operates from a small office with a spaghetti of wires linking 16 Psion Dacom V.Fast modems to 16 BT sockets, a Sun server, a couple of PCs and an A5000. Yes - an Acorn! Although U-Net doesn't specifically offer Acorn support (it may do so when we have a full set of commercial software), one of its gurus, Adrian Bool, is an Acorn fan and prefers to edit all his text files on the A5000 rather than a PC.

The server has an Ethernet output which leaves the building via a 64K line and heads off into the blue yonder to connect with the rest of the Net. And that's about all there is to it... except that this is yesterday's technology! U-Net has just installed a machine called the Ascend Max, which is the very latest in state-of-the-art comms technology. About the size of a PC base unit, it provides the functionality of a server plus 30 modems in one box. Not only this, but it connects to the local cable company's fibre optic network with just four cables, doing away with the spaghetti and making it a totally digital system.

It makes a great deal of sense for smaller companies to provide a local Internet service. Demon grew large because it was one of the first in the field, but it has always had trouble maintaining the quality of service in step with the exponential growth in its customer base. The advantage of Demon is its cheapness (though this is now being eroded), and support for non-PC users, but complaints still persist from some users about unreliable service and wasted calls. I have to say that I have had these problems continually in my 6 months with Demon.

Local providers, on the other hand, are unlikely to expand at such a rate, and can offer services tailored to local requirements. And when we all get cabled, as has been threatened for some time, there will be even more advantages. Cable companies may well offer inexpensive ISDN lines to their customers, as well as cheap or even free calls, opening up the prospect of fast, direct digital links with the local Internet provider (if you have a serial port fast enough). This would put ordinary households and small businesses on a par with universities and large companies who already have excellent links, and would make the World Wide Web much more usable as a general purpose tool.

French Connection

Among the e-mail received by Netline was a message from RISC User reader Laurent Domisse in France (*domisse@hplyot.obspm.fr*), who offered help to any other French-speaking Internet users who may be struggling to get to grips with the system. So if you would like some help, or you're a lonely Acorn user in France and want to contact other French users, do drop him an e-mail.

Similarly, if you can offer help to newbies in any language (including English!) and you don't mind being e-mailed by perfect strangers, let us know your e-mail address and we'll pass it on through RISC User.

Serving the Acorn Community

In April's Netline (RU 8:5) I described listservs (programs which automatically process requests for information and e-mail it back to you). Maurice Hendrix from the Netherlands has kindly pointed out a number of useful facts about listservs which apply to Acorn computers. Firstly, there is an Acorn mailing list, *ACORN-L@TREARN.BITNET*. To join the list, send an e-mail to:

```
listserv@trearn.bitnet
```

with the message:

```
SUBSCRIBE ACORN-L Fred Bloggs
```

replacing *Fred Bloggs* with your own name.

Secondly, there are a number of mailing lists that enable users with e-mail-only accounts to read the comp.sys.acorn newsgroups. These are CS-ARM (for comp.sys.arm), CSA (comp.sys.acorn), and CSA-ANN, CSA-APPS, CSA-GAMES, CSA-HARDW, CSA-MISC, CSA-NET, CSA-PROG and CSA-TECH for c.s.a.announce, c.s.a.apps, c.s.a.games, c.s.a.hardware, c.s.a.misc, c.s.a.networking, c.s.a.programmer and c.s.a.tech respectively. To subscribe to any of these, send an e-mail to:

```
maillist@cray-3.xs4all.nl
```

with the subject as:

```
SIGNON <group>
```

e.g. SIGNON CSA-PROG. It's the *subject* line that's important - any message will just be ignored.

Finally, there is a mailing list software package which is available for download, and which is widely used on Acorn machines around the world. *MailList* allows you to set up a mailing list host on your computer, or to schedule mail and news to be sent at regular intervals (e.g. anniversaries). You can find it at Demon's ftp site, in the */pub/archimedes/utils* directory.

PC Matters

Have you wondered why your new 486 card can be seen but not heard? Alan Bonsor shows you how to make it audible.

Making the Cable

You will need:

Qty	Item
2	2-pin 0.1" female sockets (e.g. Molex)
2	20cm lengths low-voltage wire (red/black)
1	30K 0.25W resistor (or variable resistor 0-200K log)
	A soldering iron or crimp tool

Figure 1. Making the cable

1) Make up a cable with a socket at each end joined by the two lengths of wire.
2) Connect the resistor to the red wire.
3) Twist the wires together along their length.

When I first installed my 486 card, sound was one area where I had very little success. I wasn't sure whether it was my own fault, a problem specific to my Risc PC, a problem with the 486 Card, or the way in which I installed the necessary drivers, but I wasn't able to get more than a simple beep out of the PC Card. Well I have now seen the light (or should that be 'heard the answer'?).

The Acorn Risc PC 486 Card does not by default provide any sound output other than a software emulated 'beep', and probably the only time you'll hear this is when you overfill the keyboard buffer by typing too much before a DOS command finishes executing.

The card does provide full PC audio functionality (but not Sound Blaster - see below); that is, it can output sampled sound and music through the Risc PC's internal speaker without additional hardware. However, in order to achieve this the *Audio Connector* on the PC card needs to be connected to the *Auxiliary Audio Connector* on the Risc PC's motherboard with a very simple cable, for which Aleph One charge the princely sum of £5 (Beebug can also supply this cable). If you have a little soldering experience, you can make the cable yourself (see inset).

Once you've installed the cable, you can listen to DOS programs and games which provide a *PC Speaker* or similar option. To obtain sound output from Microsoft Windows, you also need to install Microsoft's *PC-Speaker Sound Driver* (see below). Acorn has not included this driver on the PC Card Support Disc.

The PC Windows Sound Drive Disc can be obtained from Beebug for £2 inc. VAT + carriage, code PCSD

Confused about Connectors?

The auxiliary audio connector is link 13 (LK13) on the Risc PC motherboard. CD-ROM drives such as the Cumana CAA 300iA, and sound cards such as Minnie and Lark, use a different connector, link 14, to output sound via the Risc PC speaker. It is possible to attach a CD-ROM drive and sound card to link 14 at the same time by using Cumana's *Link 14 Expander Board*.

Connecting the Cable to the PC Card

The *audio connector* is situated directly beneath the bottom left corner of the processor, assuming the card is installed and you're looking at it from the back of the computer (see figure 2).

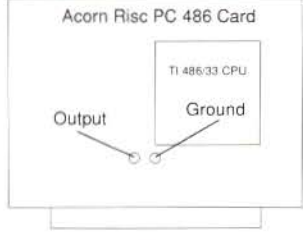


Figure 2. Connecting the cable to the PC card

Output is the left-hand pin, *Ground* is the right-hand pin. Fit the cable's connector over the two pins so that the red wire is connected to the output pin and the black to ground. Note that early versions of the Risc PC 486 Card - those that formed part of the '500 batch' - do not

provide an audio connector, even though the thru-plated holes are present on the card. Once again, if you have a bit of soldering experience and you have one of these cards, simply solder a header to the holes. Otherwise, ask your dealer.

Connecting the Cable to the Risc PC Motherboard

The cable must be connected to pins 5 and 6 of LK13 - the *Auxiliary Audio Connector* (see figure 3). If the computer is facing towards you, *Ground* is the middle pin (pin 6) on the VRAM side of the LK13 connector, and *Input* is the middle pin (pin 5) on the power supply side. Fit the cable's connector over these two pins so that the red wire is connected to the input pin and the black wire to ground.

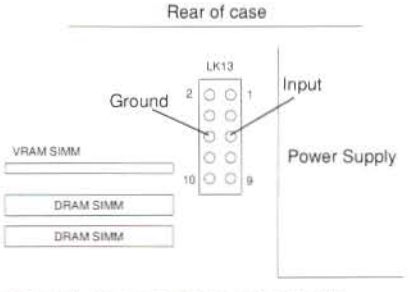


Figure 3. Connecting the cable to the Risc PC motherboard

Installing the PC-Speaker Sound Driver for Windows

If you attempt to run Windows' *Sound Recorder* application, which allows you to play .WAV sound samples, you will very likely get the following error message:

Sound Recorder cannot record or playback because a sound driver is not installed. Use the Driver option in Control Panel to install a driver.

In order to hear Windows' sound output you need to install the Microsoft PC-Speaker Sound Driver. This is contained in a self-extracting DOS archive called *SPEAK.EXE*, which you will find by double-clicking on *!PC-Driver* on the magazine disc. Copy SPEAK.EXE onto your PC partition or a DOS formatted disc before dearchiving it as follows:

```
C:>speak
```

To install the speaker sound driver, run *Control Panel* in Windows and select the *Drivers* option. In the Drivers window click on the *Add...* button. In the list of drivers, select the first item, *Unlisted or Updated Driver*, and click on OK. Enter the full pathname to the dearchived sound driver, e.g.

```
c:\drivers\sound
```

and click on OK. An *Add Unlisted or Updated Driver* window will open, hopefully containing the following:

Sound Driver for PC-Speaker

Select OK to install this driver. If all is correct and you have connected the PC card's audio connector to your computer's audio connector, you should hear two notes as the sound driver initialises.

The *PC-Speaker Setup* window will now open, allowing you to adjust playback speed and pitch. Click on the *Default* button. Finally click on OK to restart Windows.

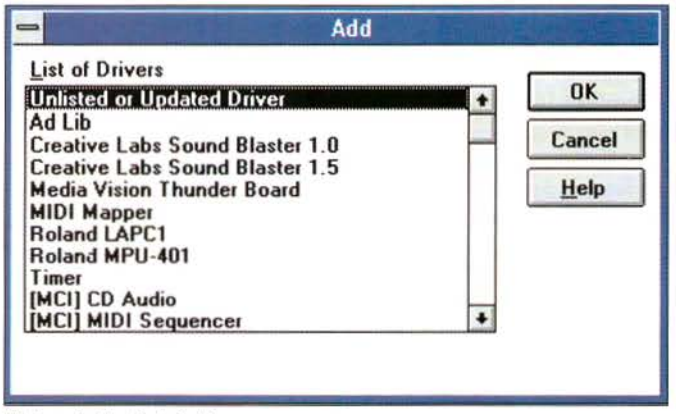


Figure 4. The list of drivers

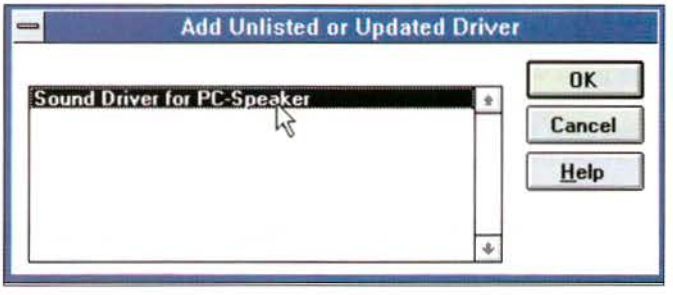


Figure 5. Installing the Sound Driver

Note: with the PC-Speaker Sound Driver you will not be able to use Media Player for playing .WAV samples. Use Sound Recorder instead.

Sound Blaster Compatibility

The above process provides you with 'PC Speaker' sound. This is not the same as Sound Blaster sound. Sound Blaster compatible expansion cards provide high quality sound synthesis, effects and MIDI support. Most PC games and multimedia titles require Sound Blaster for playing sound effects and music.

There are two ways of making your Risc PC 486 Sound Blaster compatible. The first is with the Acorn/ESP 16-bit *Minnie* sound card plus Sound Blaster Emulator. This is the recommended system to go for, but does not look like being available for at least another 4 to 6 weeks, and will not allow you to record sound under Windows.

The alternative method, if you require Sound Blaster support immediately, is to use a device called *PORT*ABLE Sound Plus*. This plugs into the parallel port of the computer and provides full Sound Blaster support under both DOS and Windows. It also has a built-in microphone which allows you to record sound under Windows. It works very well with DOS programs and particularly games such as Kings Quest 6. I have however had some problems when using it with Windows Multimedia titles, for example Encarta 95.

The problem appears to be one of timing, caused perhaps by the ARM and Intel processors battling for control of the parallel port. Occasionally while sound is being played, lengthy disc activity will cause the PORT*ABLE Sound Plus software to 'lose' the connection to the hardware. It will 'reconnect' once the disc activity has stopped and you've pressed a key to continue.

The timing problem is unfortunate as it detracts from what is otherwise an excellent product. Aleph One has been informed of the problem and hopefully will find a solution in the not too distant future. Rather interestingly, I have been informed that an Acorn company may be working on software that will allow PORT*ABLE Sound Plus to be used directly from RISC OS. Watch this space for further details.

ESP can be contacted at:
Holly Tree Cottage
Main Street
Strelley Village
Nottingham NG8 6PD
Tel/fax 0115 929 5019

For more information about PORT*ABLE Sound Plus contact **Innovative Communications on 0181 953 0948.**

MINI REVIEWS

Continued from page 43

Movies, movies, movies

whether the file is an AVI, MOV, FLI/FLC or WAV file. Although this isn't a serious problem, AVI, MOV, FLI/FLC and WAV are totally different file formats and should have different icons and filetypes to tell them apart.

The CDFS bug

There is a bug in the Compact Disc Filing System (CDFS) up to version 2.21, which causes it not to perform filetype mapping as set up by the *DOSMAP command. The result of this is that the majority of files on a CD-ROM will be given the DATA filetype, even if they have been DOSMAPed to a different filetype. Since MovieFS will only recognise the file if it has an AVI filetype, you cannot run the movie from the CD-ROM. You need to copy it onto the hard drive and then set its filetype, which can be a trying process with a 30Mb file.

There is a solution to this problem in the form of a public domain utility called *FileTypes*. It is supplied free with MovieFS and works with CDFS 2.20 and 2.21. You simply add it to your boot sequence, after which CD-ROM files will then be DOSMAPed correctly.

Verdict - An Oscar-winning performance!

MovieFS

Supplier	**Warm Silence Software** **St. Catherine's College** **Manor Road** **Oxford** **OX1 3UJ** **Tel. 01585 487642**
Price	**£26.42 (no VAT)**

Just a Page

Douglas Boote presents a program which demonstrates that old favourite, the Tower of Hanoi puzzle

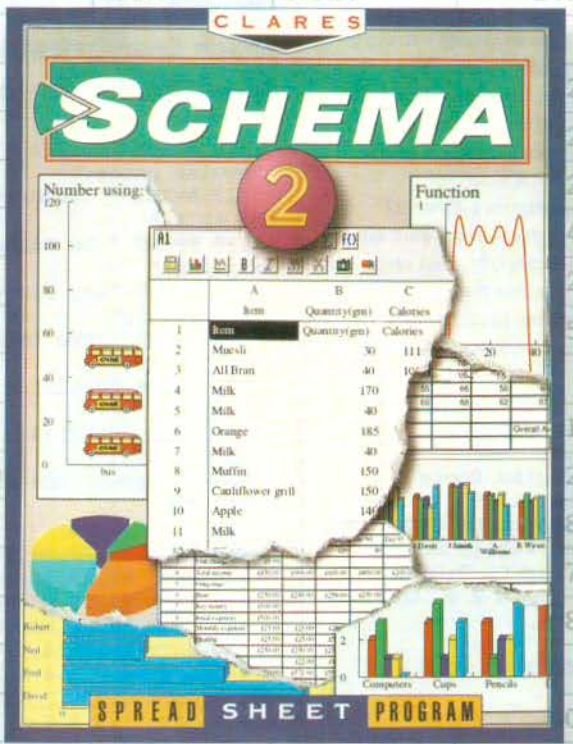
Most people are familiar with the Tower of Hanoi. In this puzzle you are presented with a tower of segments, each smaller than the one below. You must move the complete tower one segment at a time, but you are only allowed to place a segment on top of a larger segment, or on an empty site (of which there are only a limited number). It sounds easy, but it's not!

The program listed here demonstrates a Tower of Hanoi puzzle, presenting a four-segment tower with three sites in total. Type in the program carefully, then save it as *HanoiTower*. When you run it, it moves the segments at 3-second intervals to show the complete puzzle solution. When you have learned the principles, you can apply them to any variant of the puzzle.

```
  10 REM            >HanoiTower
  20 REN Version    1.00
  30 REM Author     Douglas Boote
  40 REM RISC User June 1995
  50 REM Program    Subject to Copyright
  60 REM            Not Public Domain
  70 DIM B$(4):B$()="":MODE 7:OFF
  80 A$=CHR$141+"    T O W E R  O F   H
 A N O I"
  90 VDU30,11
 100 FOR W%=1 TO 4:FOR X%=1 TO 8
 110  READ R$
 120  B$(W%)+=CHR$(EVAL("&"+R$))
 130 NEXT:NEXT
 140 PROCchallenge
 150 PRINT TAB(0,4)".........      .....
....     ........."
 160 PRINT " SITE  A        SITE  B
 SITE  C"
 170 PRINT 'CHR$131"        Only SMALLER
 on LARGER"
 180 PRINT TAB(0,10)"The tiles are move
d every three seconds"'
 190 PRINT CHR$130A$'CHR$131A$''" Press
 to move without waiting"'"
or to repeat the demonstration."
 200 VDU30,11
 210 FOR X%=0 TO 14
 220  IF X%=0 PRINT'B$(1)'B$(2)'B$(3)'B
$(4)'
 230  I$=INKEY$(300)
 240  READ A,B,C,D,E
 250  PRINTTAB(14*A,B)SPC9 TAB(14*C,D)
B$(E)
 260 NEXT
 270 PRINT CHR$7" That took 15 moves"
 280 PRINT CHR$130"SPACE to repeat..."
 290 PRINT CHR$131"RETURN to quit...."
 300 PRINT TAB(0,11) SPC39;
 310 PRINT TAB(1,16)"The moves follow a
 regular pattern.  "
 320 PRINT "  When you find it you will
 be able "
 330 PRINT " to repeat with real tiles
or coins,"
 340 PRINT "say six or more, quickly an
d accurately"
 350 PRINT '"The table below shows what
 can be done:-"
 360 PRINT CHR$131 "   TILES   2   3
4   5   6   7"
 370 PRINT CHR$130 "   MOVES   3   7  1
5  31  63 127"
 380 IF GET=32 RUN ELSE CLS
 390 END
 400 :
 410 DATA 95,20,20,20,FC,20,20,20
 420 DATA 92,20,20,FC,FC,FC,20,20
 430 DATA 93,20,FC,FC,FC,FC,FC,20
 440 DATA 97,FC,FC,FC,FC,FC,FC,FC
 450 DATA 0,1,1,4,1,0,2,2,4,2,1,4,2,3,1
 460 DATA 0,3,1,4,3,2,3,0,3,1,2,4,1,3,2
 470 DATA 0,3,1,2,1,0,4,2,4,4,1,2,2,3,1
 480 DATA 1,3,0,4,2,2,3,0,3,1,1,4,2,3,3
 490 DATA 0,3,1,4,1,0,4,2,2,2,1,4,2,1,1
 500 :
 510 DEF PROCchallenge
 520 PRINT CHR$133A$'CHR$134A$'
 530 PRINT "Tiles of different sizes fo
rm a pyramid"
 540 PRINT "  The challenge is to move
the tiles"
 550 PRINT "    one by one, to a differ
ent site."'
 560 PRINT "This   demonstration  uses
four tiles,"
 570 PRINT "always putting smaller on l
arger tiles,"
 580 PRINT "or  moving  top  tiles  to
 empty  sites"'
 590 PRINT "It will be clearer when you
 see it done"
 600 PRINT 'CHR$134"   Press the SPACE
bar to continue"'
 610 PRINT B$(1)'B$(2)'B$(3)'B$(4)
 620 PRINT '" SITE  A        SITE  B
  SITE  C"
 630 IF GET VDU 12,30,7
 640 ENDPROC
```

ZZZZZZZZ

Don't let your figures send you to sleep



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Hitchhiker's Guides to the Superhighway

Alan Bonsor examines a few of the essential and not so essential books about the Internet

In a comparative review of seven Internet books in PCW (April 1995) the author began by commenting that the problem with many books about the Internet is that they 'are not very good'. She bemoaned the lack of decent contents and index sections, the overly technical content, the poor readability caused by bad page layout and design, and the fact that almost all are American.

Of the five books that I've examined in this review only one - New Rider's Official Internet Directory - also featured in the PCW review. It and NetTrek - Your Guide to Trek Life in Cyberspace are reference books which may help you locate items of interest on the Internet, once you've learnt how to navigate your way around it. More about them later.

The other three - one American and two British - are beginners guides to using the Internet. They cover the following areas:

- What the Internet is and how it came about
- Getting connected
- Using electronic mail
- Sending and receiving files with FTP
- Exploring the World Wide Web
- Finding things with Gopher, Archie and Veronica
- Telnetting
- Newsgroups and Mailing lists
- Netiquette

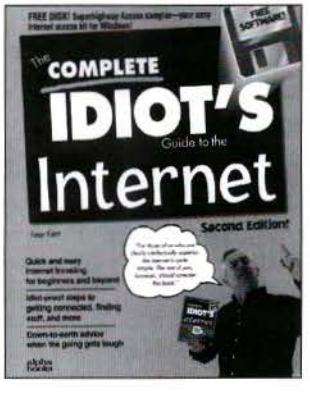
None of them suffers from the first of the PCW review problems. They all have very good contents and index sections, ranging in length from 5 to 15 pages. The American books also provide 'quick-find' and 'comprehensive' contents pages. As far as technical content and style is concerned, you need to be computer literate, nothing more.

There are two excellent reasons for 'buying British'. Firstly, All you need to know about the Internet and The UK Internet Book, explain how to get connected to and how to use British Internet providers, e.g. Demon, as opposed to American ones.

Secondly and more importantly, the 'free access to the Internet' offers in the American books are good value, provided you live in America. If you live in Britain you ideally want free access to Demon or a similar provider. Both British books oblige. There's a third reason as well: both British titles mention the Archimedes alongside the PC, Amiga and Macintosh. Even so, none of these books specifically explains how to connect an Archimedes/Risc PC to the Internet. They all discuss the methods involved in getting connected and use Windows/Mac software for demonstration purposes.

The Complete Idiot's Guide to the Internet

by Peter Kent



I don't know about you, but I find titles that contain 'complete idiots' or 'for dummies' quite patronising. I may be new to the Internet but I am not an idiot and I don't want to be treated like one. Some of the chapter headings in this book - *More neato FTP stuff* and *Speak like a geek: the complete archive* - seem to me to be very juvenile, and the same goes for the cartoon graphics used to highlight important areas. However, since there are another 8 best-selling 'Complete Idiot's' guides by the same publisher, it may simply be that I have a sense of humour deficiency.

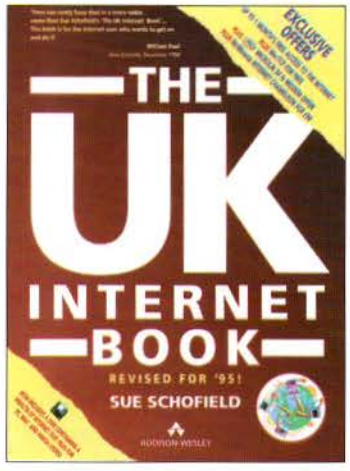
Titles and graphics aside, Peter Kent has a very endearing style of writing. In chapter 2, *What is this thing called the Internet?*, he writes: "When I first started working with the Internet, I felt lost. The 'documentation' I got from the company that provided my Internet account was a joke. It was badly organised and misleading, and omitted lots of important stuff." On reading this I immediately felt that here was someone who knew exactly what I was going through.

Unfortunately two things detract from what is otherwise a good book. The first is that I found it very tiring to read. It appears that the publisher has tried to use a casual page layout

so as not to intimidate the beginner. Well it's too casual. Everything is too big, too bold and too loud. I got tired just looking at the pages.

The second problem is that there seems to be too much information, perhaps as a result of the page layout. The text is well written, useful and very interesting, but it takes quite a bit of effort to work through.

Verdict: You could do a lot worse. The Complete Idiot's Guide to the Internet Peter Kent Alpha Books £18.95



The UK Internet Book, 2nd Edition

by Sue Schofield

Why, one may ask, is a fairly important topic such as 'Getting started with an Internet provider' only found in Appendix 3 of this book? The answer lies in Sue Schofield's 'note' at the beginning of the appendix which reads, "The UK Internet Book is pleased to be associated with Demon Internet Services *who have provided much of the text in the following Appendices.*"

In fact slightly under half this book is taken up by 15 appendices of which 12 are 'reprinted with permission'. There is nothing wrong with this as such; it's just that most of the documents are available free on the Internet and Demon would probably post them to you on request.

Filling up the remainder of the second half of the book are chapters such as *A brief history of crime*, *Internet past, present and future - the birth of Unix*, and *Sex, lies and video-rape - social issues on the Internet*. Interesting reading maybe, but absolutely nothing to do with 'using' the Internet.

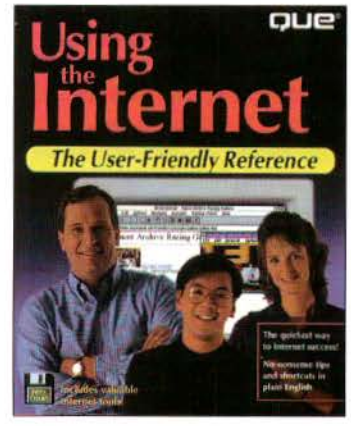
Of the book's 350 pages, only the first 150 or so are spent by the author on topics related to accessing and using the Internet. The text can be described in three words: pedestrian, unstructured and confusing. *Starting out* on page 5 is a perfect example of the latter. It explains how to access the Internet: "The first thing you need for access to the Internet is an Internet access account. It takes the form of provision of an access point to the 'Net, and generally speaking, you'll pick up that node - or permission to use it - from an Internet provider (IP in the jargon)." A model of clarity!

Unstructured? On page 17 a one-page section called *Shareware or commercial* examines using shareware and commercial software for accessing the Internet. Three pages later a two-page section called *Shareware or commercial ware* examines using shareware and commercial software for accessing the Internet and the costs involved.

Finally, while *The Complete Idiot's Guide* goes over-the-top in the layout and design department, this book is difficult to read for the opposite reason: the body text flows from page to page interrupted only by headings and screenshots. No icons, symbols or different text styles are used to highlight important areas, and new paragraphs are identifiable only by their first lines being indented. Addison-Wesley is a respected publisher. It should know better.

At £19.95 it's the second most expensive of all the books examined here. Even taking into account it's 'Exclusive offer' of 1 month's free access to the Internet, which isn't exclusive at all since the other British entry carries an identical offer, this book is at least ten quid too expensive.

Verdict: Not recommended at all. The UK Internet Book Sue Schofield Addison Wesley £19.95



All you need to know about the Internet

by Davey Winder

According to the *About the author* section of this book, Davey Winder, or Wavey Davey as he likes to be known, is something of an Internet celebrity. He's appeared on TV and radio to talk about the Internet and even has an Internet fan club where adoring groupies worship him.

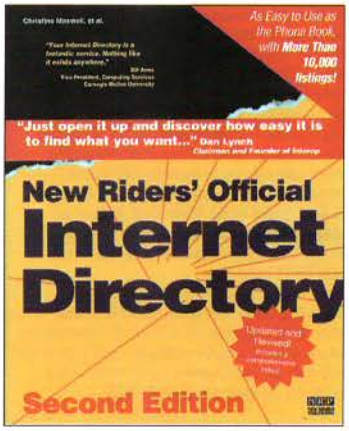
Well I've just become one of those groupies. *All you need to know about the Internet* is quite outstanding. It's concise, to the point and informative.

Page layout and design are perfect and the book reads like a dream. Whereas opening any page in the other two books will present you with a large amount of text, turn to any page in this book and useful advice jumps right out at you. For example, "Don't libel in email, you could find that your message is just as good a piece of evidence as if you had typed it in and sent it by snail mail."

Not only is this the best Internet book I have come across, it's probably the best computer book I have ever had the pleasure to read.

Verdict: I cannot recommend this book highly enough. Buy it immediately.

All you need to know about the Internet Davey Winder Future Publishing £14.95


As Easy to Use as the Phone Book, with More Than 10,000 listings!
"Just open it up and discover how easy it is to find what you want..." Dan Lynch
New Riders' Official
Internet
Directory
Second Edition

New Rider's Official Internet Directory, 2nd Edition

Christine Maxwell, et al.

Now I never thought I'd say it, but this is one 'yellow pages' which I would take to bed for a good evening read. Randomly open any one of its 800 pages and you'll find listings for resources as diverse as:

On-u: a mailing list that encourages discussion related to Adrian Sherwood's On-u Sound Label

Mustangs: a forum for the discussion of technical issues, problems, etc., relating to late-model Ford Mustangs

Mycoplasma: a discussion group on veterinary mycoplasma

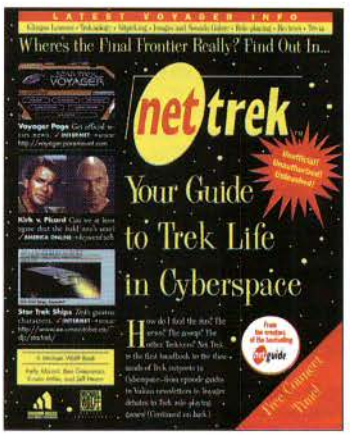
in addition to over 10,000 other listings. Every listing has a brief description, keywords to help you to identify the resource's area of interest, an audience field to tell you who might find the resource useful, a 'details' section which gives valuable information such as whether the resource costs anything to use, and most importantly, the Internet address in the form of an expanded Uniform Resource Locator (URL).

This book is well laid out and a pleasure to use. If it contains the information you require you'll find the listing(s) very easily via the comprehensive index.

There's a problem however. Although this edition contains around 4* thousand more listings than the previous edition (according to the authors), 10,000 listings is a fraction of what's available on the Internet. £27.49 is a lot of money to spend on a book which is, for all intents and purposes, already out of date.

Verdict: Recommended with reservations.

New Riders' Official Internet Directory Christine Maxwell et al. New Riders Publishing £27.49



NetTrek - Your Guide to Trek Life in Cyberspace

Sohvo' bov bIr'e' rur
jIDachtaHghach, qaStaHvIS
moDbogh DIS belwI'na', soHbogh.

(Sonnet 97, from the Klingon Shakespeare Restoration Project).

Although I don't think I could class myself as a true Trekker, mainly because I cannot speak Klingon (sorry, tlhIngan-Hol), I will admit to being a bit of a Star Trek fan. This is a book that no self-respecting Star Trek fan or Trekker should be without. It boldly guides you around the thousands of Trek outposts in Cyberspace.

Want to know where to find a picture of Kirk and Spock outside the time travel portal in the episode *The City on the Edge of Forever*, or how to obtain a copy of the thesis *The Undiscovered Country: 1960s Religious Themes in Star Trek?*

Whatever your interest, be it Klingon culture and language or Terry Farrell, this book will tell you where to go on the Internet to find what you're looking for. The book contains episode guides for The Original Series, The Next Generation and Deep Space Nine, as well as information about the latest series, Voyager, and all seven films. If that's not enough, the *Real Space* chapter provides details about *Astronomy* and *NASA* sites on the Internet.

Finally, the book isn't only for Star Trek fans. Sci-Fi books, films and series are all covered in the *Genre: Other Sci-Fi* chapter. What's included? Alien and its sequels, Babylon 5, Battlestar Galactica, Blade Runner, Doctor Who, Dune, Red Dwarf, Star Wars to name but a few.

Verdict: Highly recommended for all Star Trek fans.

NetTrek - Your Guide to Trek Life in Cyberspace Kelly Maloni et al. Michael Wolff, Random House £17.49

In Conclusion

New books on the Internet are appearing all the time, so if you don't think any of those reviewed here meets your needs, check your local computer bookstore occasionally. And don't forget that for Net junkies there are now several magazines devoted to the subject.

Classifieds

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A5000 Learning Curve, 2Mb RAM, 40Mb HD, AKF18 monitor, Ovation v1.25, all manuals including Basic reference £550 o.n.o. Tel. St Albans 01727 852003.

RISC OS 2 Programmers Reference Manuals £45 including postage, please ring Norfolk 01328 864177.

BBC B OS 1.20, Watford DFS 1.20, Wordwise 1.17, Pace 80T DD, Epson FX80 printer (faulty), Tensai cassette player, Philips colour TV/monitor, Micro User vol.1/1 - 8/9, BEEBUG magazines complete, loads of books and manuals, Watford extension ROM board, many programmes on ROM, disc and cassette. Tel. Oxon 01869 277234.

A540, 8Mb RAM, RISC OS 3.10, 120Mb SCSI hard drive, Acorn SCSI hard drive, Acorn SCSI board, ElZO 9060S multisync monitor, joystick, Easiwriter, Pipedream 4 and Interdictor £850. Aleph One 486SLC PC podule 50Mhz 4Mb RAM, !PC software v1.59 + windows drivers + Dr DOS £350, Cumana 5.25" floppy drive plus interface podule £30. Tel. East Grinstead 01342 714905.

80Mb IDE drive and podule for 300/400 series machines £100, 30Mb ST506 drive £30, RISC OS 3 chips, carrier board, manuals etc. £70 all include post. WANTED: For A5000 16 bit SCSI podule and 386 PC card with RAM. Tel. Herts 01992 462072.

Expansion cards: Acorn MIDI c/w EMR Studio 24+ (v2) £80, Aleph One 486 PC (4Mb/50Mhz) c/w latest software and Microsoft MS-DOS (v5) £400, Minerva: GammaPlot (v2) £15, System Delta + (v2) £25, Oak: Genesis (v2) £20, Clip Art: Christmas Allsorts £10, Prehistoric Animals £5, Educational: Bonjour de France - Ma Ville £20, Driving Test £10, Droom £10, Giant Killer £5, Healthdata £5, Help! £3, Telecommunications £8, Word up Word Down £3, Books: Genesis Script Language £5, MS-DOS Quick Reference £5, RISC OS 2 PRMs £35, all original software with documentation etc. Tel. Surrey 01737 832159 eves/w/ends.

A3000, 4Mb RAM, 60Mb internal IDE drive, ARM3, RISC OS 3.1, VIDC enhancer, boxed with manuals £350 o.n.o. RISC OS 3.1 PRM £50. Tel. Cambridge 01223 69347.

A3000 , 4Mb RAM, RISC OS 3.1, manuals, Panasonic 9 dot printer, colour monitor, lots of software. Tel. Merseyside 01925 223324.

Impression Style with latest version of TableMate 2, manuals and extra borders £70, Easiwriter 3 version 3.05 £80. Tel. 0131 447 8624.

Fireworkz Pro £120, complete, boxed and manuals. Tel. Surrey 01276 28932.

Pipedream 4, complete £20. Write to: Mr Boardman, 19 Southcliffe, Great Harwood, Lancs BB6 7PP.

A310, 1Mb , twin 3.5" floppy (800k), keyboard, RISC OS 2.0, Acorn black and white monitor, phono lead, mouse, manual £120. Epson LQ850 24 pin dot matrix printer and sheet feeder £70, SCSI hard disc 120Mb £80, MSDOS 6.2 and Windows 3.11, discs only £50, MS DOS 6.2 and Windows 3.1, discs only £45, all at £15 each : ROM/RAM podule (64k + battery), Philips Yellow/White monitor, Schema 1, Acorn 2 slot backplance/fan, Acorn mouse, Electron Plus One. Tel. Tamworth 01827 330118 eves/w/ends.

Fireworkz Pro £100, ProArtisan 24 £100, both are boxed and complete with manuals. tel. Surrey 01276 28932.

Archive volumes 4-7, good condition £20 o.n.o, A3000 user port £10, 2 sets of RISC OS 2 ROMs £15 each, carrier board £25 and Cycloids £12.50, also WANTED: 4Mb RAM for A3000 (upgrade from 2Mb). Tel. Old Newton 01449 673443.

Wordz - unused copy, boxed with manual and two AbacusZLine discs of resources/suggestions/helps etc. £30, Acorn Pocket Book, as new, with Schedule, boxed with manuals £150, back issues of RISC User - vols 2,3,4,5 with indexes, all VGC, offers? CC ROM/RAM podule with 2x 32k RAM, battery back-up version, boxed with manual, as new £15. Tel. Shropshire 01952 247783.

A5000, 4Mb RAM, 120Mb HD, RISC OS 3.1, Acorn Multisync Monitor, 2yrs old and has had only light home use £800 o.n.o. Enter the Realm £7, Archive Mousemat £1.50, back issue magazine cover discs (1991 onwards, ArcWorld, AU, AC) £1 each. Tel. Devon 01823 680111.

State machines G16 colour card £180 o.n.o. Acorn Desktop C version 4 £150 o.n.o. Techwriter version 2 £120 o.n.o. Tel. 0181 503 6548 eves.

STOLEN: 10Mb RISC PC 600 with SCSI card syquest drive, 270Mb, colour A4 flatbed Cannon scanner. If anyone is offered this system please contact Glos. 01453 752040 anytime. (Serial Nos. 72ACB451011238 and 28AKF850100974).

Sim City 2000, A5000 version, unwanted present, unused £25. Tel. Dorset 01202 657373.

A5000, 4Mb RAM, 80Mb HD, RISC OS 3.1, includes PC Emulator and manuals. perfect condition £850 with AKF50 multisync monitor or £600 without monitor. Tel. London 0181 882 2592.

RISC PC 600, 5Mb RAM, 210Mb HD, AKF60 monitor very good condition, complete with wide range of software, optional 486 card and optional 24bit Inlam scanner £1,300 or £1,650 with scanner. Tel. Derbyshire 01283 762380 after 5pm.

A420, 4Mb RAM, RISC OS 3.1, 20Mb HD, 60Mb IDE HD, colour monitor, manuals, packaging, Ovation, ANSI C, 1st Word Plus v2. £750 o.n.o. Tel. 01494 764643.

Pocket book series 3/3a, 512k RAM disc and new battery (new now £140) £90 o.n.o. 128k Flash disc £30 o.n.o. Psion games disc one (7 games) for the above machines £20, RISC OS Style Guide with New look disc new & unused £6, Pocket Book 3/3a Technical documentation 3 large manuals that cover the o/s and file formats with ways and means of accessing them both. Definitions use 'C' notation and it comes complete with PC 'C' libraries and a description of Psions Object Orientated libraries. Machine code calls can be done from OPL to take advantage of all the o/s kernel routines £60. A410/1, 4Mb RAM, 33Mhz ARM3, 50Mb HD (2 of), Newlook desktop, I/O podule, midi, sound sampler, keyboard extension cable and postage £500 o.n.o. Tel. Worcs 01905 754277 after 6pm.

RISC PC, 8Mb DRAM, 2Mb VRAM, 420Mb HD, AKF85 monitor, CD-ROM (quad speed), SCSI 2 card, stereo speakers, 16bit sound card (Acorn), Canon BJC-600 colour inkjet printer, all with software, cables, manuals and boxes etc. as new £2,275 o.n.o. Tel. Lymington 01590 677625.

210Mb IDE HDU £120, 110Mb IDE HDU £60, dual speed IDE CD £60, all suitable for RISC PC, all plus £5 p&p or collect. Tel. Norfolk 01328 864177 after 7pm.

Techno-I colour video digitiser, Vertical Twist econet midi/sampler, joystick interface with joysticks, cordless mouse too many 4th Dimension games to list, also Sega Game Gear with games and accessories. Any offers considered. Tel. Essex 01621 891832.

Acorn A3000 computer with 4Mb RAM, 80Mb internal HD, ARM3 upgrade, RISC OS 3.1 and AKF50 high resolution monitor, complete with all manuals £550 o.n.o. Tel. 01294 835519.

A3000, 2Mb, 120Mb HD, RISC OS 3.11, SCSI port, sound sampler, 'ultimate' expansion, midi port, serial u/g, TV modulator, dual joystick port, all manuals, many games, apps and loads of PD £400 o.n.o. Tel. Lincoln 01522 685295.

First Impression tutorial guide and discs £10, RISC User magazines vols. 1 to 7 complete in binders offers? The Micro User vol.1(1983) complete in binder offers? Tel. Bridgnorth 01746 767068.

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PDE4b	DeskEdit 4	27.19	22.94
PDE0a	Upgrade DeskEdit 1/2 to 4	6.00	6.00
PDEUa	Upgrade DeskEdit 3 to 4	6.00	6.00
0096b	Desktop Thesaurus	19.00	16.15
0100b	Easy C (with debugger)	59.00	50.15
0080c	Easy C++	99.00	84.15
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PFD2a	RISC User Fonts Disc 2	10.17	8.65
PFD3a	RISC User Fonts Disc 3	10.17	8.65
PFD4a	RISC User Fonts Disc 4	10.17	8.65
0094b	Hard Disc Companion 2	45.00	38.25
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0108c	Ovation	69.00	58.65
0097b	Playback	19.00	16.15
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PV4Sa	RISC User Vol. 4 Special Disc	12.68	8.47
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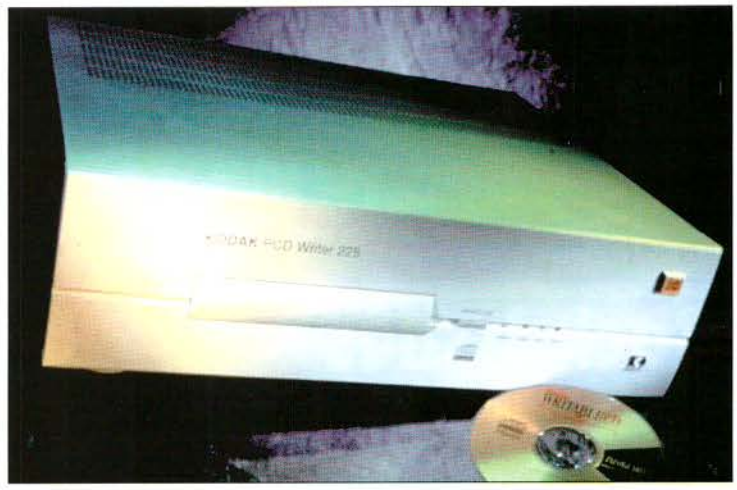
Kodak PCD-225 Writable CD Drive

Did you realise that you can now create your own CD-ROMs?

Paul Ashmore looks at Kodak's answer.



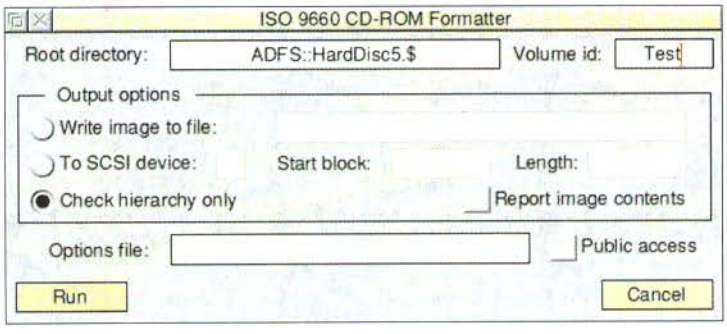
My initial thoughts were that only professional publishing houses would need a writable CD drive. But on further consideration, and as the prices drop, there is a host of uses for the non-professional too. For example most of us find that we can't have too much hard drive space, and some uses seem to gobble it up at an alarming rate; for example Replay file sequences and PC partitions (using Windows applications in particular). Maybe you need to provide readily accessible backups of your school's file server, or you have vast libraries of PD images, clipart, or fonts, or want to provide software in read-only form and sell it commercially. In this case maybe a writable CD is the answer to your problems.

Well, help is at hand with the Kodak writable CD-ROM drive, especially when you compare the media cost of writable 700Mb "Gold" CDs at less than £10 each, with a 270Mb SyQuest cartridge at over £70.

Kodak's CD drive requires a SCSI interface which is not supplied. As delivered the box contains the CD drive (which is massive at 120 x 450 x 300mm), a power lead and manual. For Acorn users it contains little of interest other than how to set up the SCSI interface, as it is mainly aimed at PC users. Kodak recommend using a SCSI 2 card, but I had no problems using a SCSI 1 card once I had made a suitable lead. Unfortunately at present you cannot get a drive that fits the Risc PC internally.

It wasn't until I had this great machine in front of me that I realised you do not get any "Gold" CDs with the drive. However, after speaking to the Kodak representative, the CDs arrived the very next day, and I was able to sit down to create my first masterpiece.

Writable CDs are known as WORM (Write Once Read Many) drives. This means that all the material that is to go on the CD has to be collected together in one directory, and written to the CD in one go. It is not possible to put 400Mb of information on to a CD now, and 300Mb later. So to fill the CD you will need a hard disc of at least 700Mb capacity, plus of course, 700Mb of files. There may be an argument that it is still worth using a CD even containing only say 250Mb of data, as it is still relatively cheap compared with other storage media, even though 450Mb of it will remain blank.

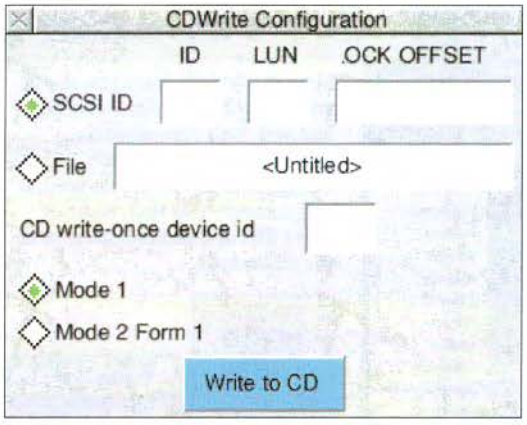


ISOForm in action.

When all your files are in a single directory on the hard drive, two programs will be needed to complete the copying process. One to format the CD, and the other to create it.

!ISOForm

!ISOForm formats the files to make sure they are CD competent (!ISOForm is an Acorn application, but please don't go rushing to Acorn for it, as it is only available to Acorn Developers at present. Acorn say that it may be available in the second half of this year from a third party). To use this you will need to enter the root directory of the files you want to transfer. This does not have to be the root directory of the hard drive, but only files within that directory will be copied to the CD. Next choose a name for the CD, then click on the option button "Check hierarchy only", and click on Run. "Check hierarchy" makes sure that there are no illegal characters which are reserved for other things, such as "/" and "-". Errors will appear in this case, and those names will have to be changed (if references to these files occur in other programs, make sure these are also changed). When done, click on the Output option "Write image to file" and Run. When the hierarchy is checked for the last time, and the final image is created, it's time to "Burn a disc" (that's jargon for creating a CD-ROM).



CDWrite in action.

Products:
Kodak PCD-225
Philips CDD-521
Philips CDD-522

Supplier:	Cambridge Multimedia Systems PLC
Address:	St Andrews North Street Burwell Cambridge CB5 0BB
Tel:	01638 743121
Prices:	£1,300 - £2,500 ex VAT

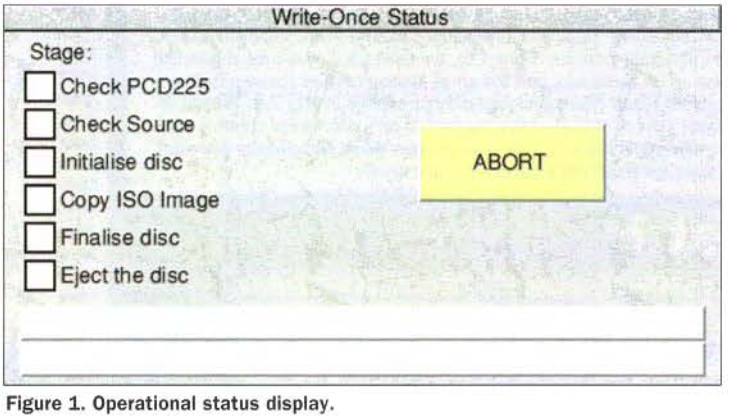


Figure 1. Operational status display.

!CDWrite

!CDWrite does the "Burning". Choose the file option, and drag the finished file into the configuration window. Make sure that the "CD write-once device id" is set to the correct SCSI device, then click on the "Write to CD" button. If everything has been performed correctly, your CD will now start to be created, and a window will open (figure 1) showing the status of the operation as it progresses. The six stages can take a total of half an hour to produce a 700Mb CD.

There are many different types of CD Recordable drive, but only three drives will work with the software at the moment: the Kodak PCD-225, Philips CDD-521 & Philips CDD-522. As is usual for newly released innovative technology it is expensive at present. The PCD-225 & CDD-521 are priced at around £2500, whereas the CDD-522 is £1300. There are rumours that a third party may be releasing a recordable drive for around £750 complete with the necessary software. We'll keep you posted.

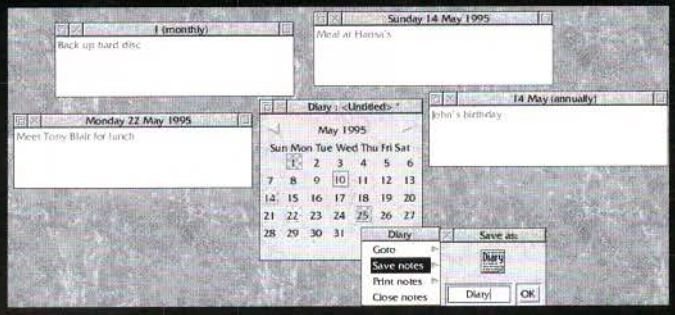
Quantity copying from your original CD

There are many companies who can produce copies from your master CD. For example:
ADS International plc
Media House
Down Road
Pimperne
Blandford
Dorset DT11 8UP
Tel: 01258 480245

RISC user

Packed with useful applications, the disc costs just £4.75 inc.VAT.
Please add £1 p&p.

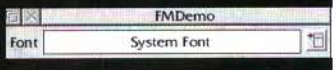
Diary *updated by David Lenthall*

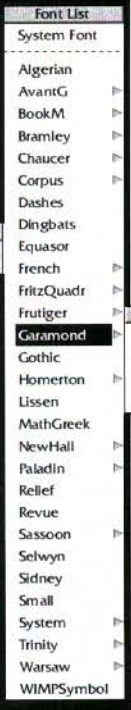


The RISC User Diary was first published in RU 2:10, and has proved to be very popular. It was updated as *Calendar* in RU 7:1, and this new update adds some more useful features, including full interactive help and the ability to deal with multiple clashing entries.

Font Menu Demo *by Richard Mawhood*

FMDemo demonstrates the principles involved in constructing dynamic font menus in your own programs, as described in *Wimp Topics* on page 48.

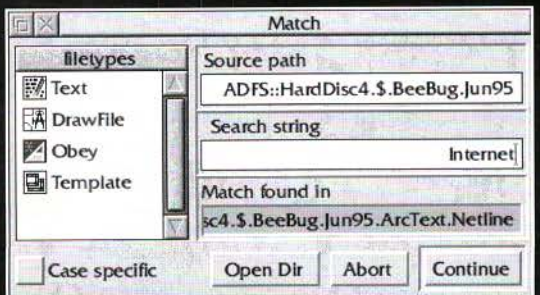




Wimp Procedure Libraries

It's been a while since we last published *WimpLib*, the ever-popular RISC User Wimp Function/Procedure Library. Since the Font Menu Demo program requires WimpLib, we thought it was time to remind readers of its existence, and for good measure we've thrown in the RISC User Heap Manager originally published in RU 7:5. WimpLib provides a set of standard functions and procedures for creating and manipulating windows, icons and menus, while HeapMngr provides functions for handling memory storage areas.

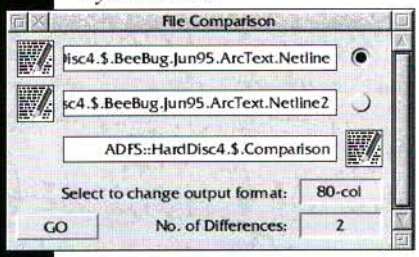
Match *by Graeme Davidson*



You know you've got a file somewhere containing that immortal line "No-one expects the Spanish Inquisition"... but you can't remember the filename. Before you load every file on your hard disc into Edit, just run *Match* and ask it to find the string for you! You can even restrict the search to specific filetypes to save time.

Compare

by Alan Stout



How many times have you found you've got two versions of a file, and you can't remember the differences between them? *Compare* is just what you need. It will compare two text, Basic or Obey files and produce a list of all the differences.

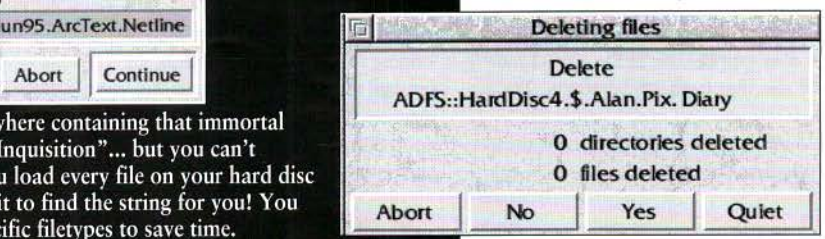
ArcScan Data

ArcScan index for this month's RISC User.

Smart Confirm

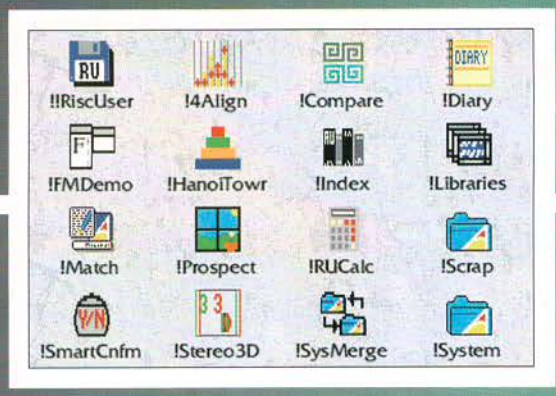
by Matt Browne

The Filer has a *Confirm* option which prompts for confirmation whenever you delete, move or copy a file. It's a useful safeguard, but most people only really need it when deleting. *Smart Confirm* is a handy little module that does just that - it enables confirmation for deleting only, allowing you to copy and move without having to confirm.



MAGAZINE DISC

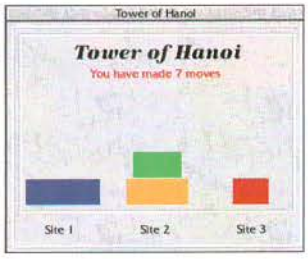
June 1995



3D GLASSES ***Free with the magazine disc - order your disc NOW!***

HanoiTower

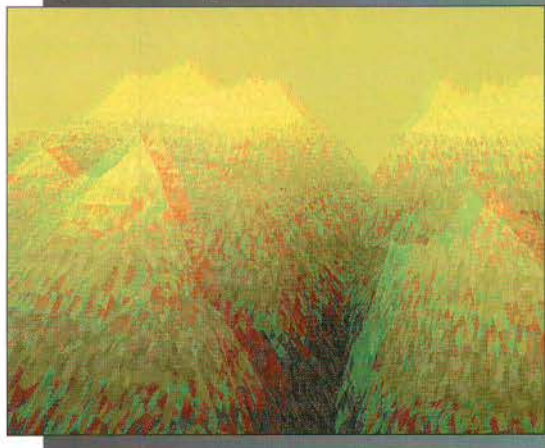
by Douglas Boote and Alan Wrigley



A demonstration of the principles used in solving the well-known Tower of Hanoi puzzle, as described in *Just a Page* on page 24. The disc also contains a playable desktop version of the puzzle.

Stereo3D

by Colin Cassidy



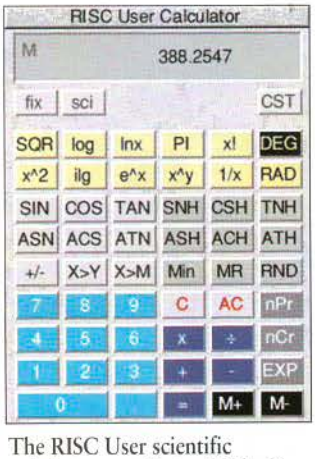
The article *Stereoscopic 3D* on page 39 describes how to produce three-dimensional pictures on your Arc. *Stereo3D* puts these principles into practice, by taking two greyscale sprites and converting them into a 3D image that can be viewed with red-green glasses.

WE'RE EVEN SUPPLYING THE GLASSES FOR YOU WITH THIS ISSUE OF THE MAGAZINE DISC!

There is also a program called *Mountain* which will generate a sample pair of sprites for use with Stereo3D.

RISC User Calculator

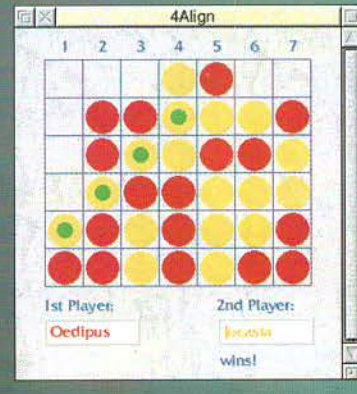
by Rupert Thompson and Alan Wrigley


RISC User Calculator
M
388.2547
fix
sci
CST
SQR log lnx PI x! DEG
x^2 ilg e^x x^y 1/x RAD
SIN COS TAN SNH CSH TNH
ASN ACS ATN ASH ACH ATH
+/- X>Y X>M Min MR RND
7 8 9 C AC nPr
4 5 6 x ÷ nCr
1 2 3 + - EXP
0 = M+ M-

The RISC User scientific calculator was first published in RU 3:10. As well as the standard calculator functions, it has around 30 scientific and mathematical functions. This new version brings it up to date with a 3D look, and also enables the keyboard to be used for input.

4Align

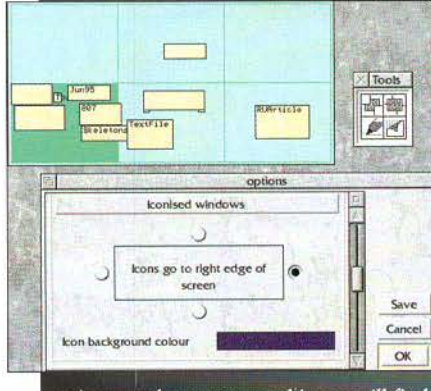
by Gillian Bobbett



We've all played Connect 4 at some time in our lives - you remember, it's the one where you drop tokens into slots to make a line of four. Now you can play it on your Acorn! *4Align* is a graphic desktop implementation which allows you to play against another human or against the computer.

Prospect

by Tony Patterson

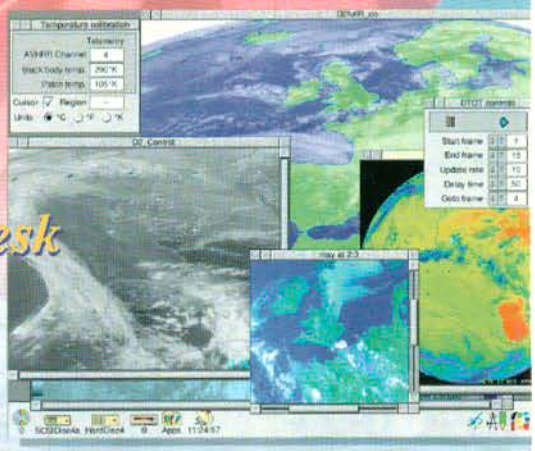


Even with a 1280x1024 desktop your screen can easily get cluttered with windows, but you don't want to close them all and then have to find them again the next minute. *Prospect* is an extremely powerful example of a 'virtual desktop' for the Risc PC, which effectively extends your desktop beyond the screen - six times the normal area in fact. To view another part of the desktop, just click on the appropriate segment in the window at the top of the screen. Prospect also gives you all the normal backdrop features, and 'parks' iconised windows neatly at the edge of the screen. If you do any serious work on your machine, you'll find Prospect invaluable.

PHOTODESK

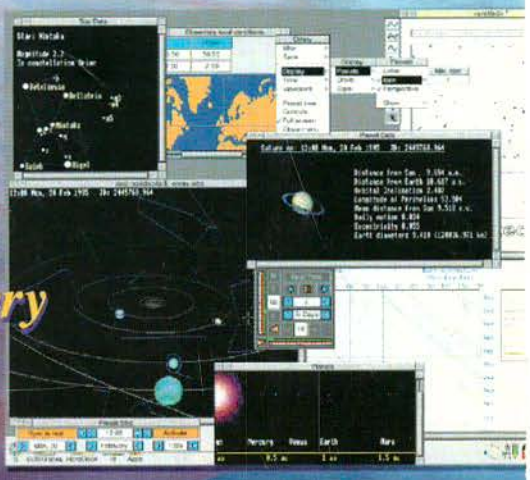
RISC PC enhanced Applications from Spacetech

PHOTODESK



The Weather Desk

PDSview



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21 West Wools
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Tel 01305 822753
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